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No. 23.

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### PSYCHIATRIC CASUALTIES IN AN OPERATIONAL ZONE IN NEW GUINEA.

By A. J. M. SINCLAIR,  
Major, Australian Army Medical Corps.

THE following is a report of 310 psychiatric casualties admitted to an Australian general hospital in the field in New Guinea during the period of five months from September, 1942, to January, 1943. In these months our troops were engaged in operations over the Owen Stanley Range and at Buna-Gona.

For purposes of comparison, experiences of similar psychiatric patients admitted to the same hospital whilst it was acting as a base hospital in Australia are appended. The last-mentioned were examined in a period of four months early in 1942.

The New Guinea material is composed as follows:

Anxiety state .. . . . .	160 cases
Fear state .. . . . .	48 cases
Hysteria .. . . . .	37 cases
Personality defects .. . . . .	45 cases
Mental defects .. . . . .	6 cases
Psychotic states .. . . . .	14 cases

The relation of psychiatric admissions to all admissions to hospital was 2·1%. Although the psychiatrist examined all the patients, this percentage does not represent a true proportion, because many patients were doubtless treated for general medical or surgical conditions, when in fact a closer study would have revealed significant neurotic disorder.

#### METHOD OF ANALYSIS OF MATERIAL.

As far as was practicable, a standard method was used for taking the history and examining all patients. Certain common factors were elicited from a perusal of the history sheets, and tabulated summaries were made of these factors. These summaries were used in conjunction with the more vaguely constituted, but equally important, general assessment of the patient, after examination and observation, in the forming of a psychiatric judgement.

The factors tabulated are frequently referred to in the text.

Whilst it is recognized that no series of such patients can be adequately fitted into a brief statistical statement, it seemed that certain common elements in each examination were worthy of tabulation. In this way it was hoped to avoid an unscientific and diffuse approach to a problem which is not a vague one.

The survey is not meant to endow figures and percentages with strictly mathematical implications. The entire examination was made by one observer.

#### GENERAL DESCRIPTION.

During the period from September, 1942, to January, 1943, all psychiatric casualties encountered in the hospital were referred to one ward, which also admitted patients with general medical conditions. The patients were drawn from a surrounding lines of communication area or were evacuated from the front line via a main dressing station, field ambulance or casualty clearing station. In addition a smaller number were referred for consultation through the Deputy Director of Medical Services, New Guinea Force.

Patients from the battle front reached the hospital within one to five days of becoming casualties. Many of these had been held in regimental aid posts and main dressing stations till the medical officer had ascertained that treatment in a forward area was no longer likely to be effective.

The conditions of fighting in the New Guinea operations were new to Australian troops. Several features are mentioned because of their psychiatric significance. Physical hardship and exhaustion were greater factors than in other campaigns. All movement was on foot over country that called upon the limits of physical and mental endurance. Progress over the Owen Stanley Range was in small groups or singly for a large part of the day. This robbed the soldier of the helpful momentum imparted by the movement of a large body of men in action.

The difficulties and dangers of the track therefore became to a large extent a personal affair. This called on those primitive aggressive tendencies of the individual that had hitherto been directed or fused into the well ordered battalion machine. The enemy, by adopting an

individual type of attack, further accentuated the personal aspect of the struggle. He now became a well camouflaged single quarry rather than a front. He presented an unseen menace in a confusion of leaves and shadows that called for the highest development in our troops of cunning and aggressiveness.

The greatly increased hazard of physical illness contrasted with that met with in desert fighting, combined with early difficulties in food supply, helped to induce a physical debility upon which psychological disorder could flourish more readily.

Lines of communication troops were subjected to bombing stress in the early months of the campaign—particularly those encamped near aerodromes.

#### EVALUATION OF WAR STRESS.

For purposes of this survey, patients were judged to have encountered one of three degrees of "war stress".

1. "Stress more than average" was the term used to denote battle stress much in excess of that sustained by the majority of the same fighting unit in action; 9% of the total were placed in this category.

2. "Average stress" denoted battle stress which was considered usual for the type of campaign in the front line. This group also included patients who had been bombed in lines of communication areas; 37% were included under this heading.

3. "No stress" meant that the soldier had been called upon to suffer little beyond the discomforts of army routine in a tropical climate; 54% of patients had suffered no battle stress.

#### METHOD OF ADMISSION TO HOSPITAL.

Psychiatric casualties were admitted to a general medical ward. The admixture of these patients with the physically ill presented no difficulties, and psychiatric patients did not suffer the inattention described as one of the disadvantages of mixed wards. Nor did this procedure appear to play a part in suggesting physical disorder to the neurotically ill.

A psychiatric history was taken during a private interview in a nearby tent, and most subsequent examination was carried out in this tent. The history was taken on standard lines. When possible a history was obtained from the regimental medical officer or from independent observers in the patient's unit. From past experience it was found that this initial history taken before the period of reminiscence (and pseudo-reminiscence) had set in was more likely to be accurate; it should be an important document when the time of pension adjustment arrives. When direct questioning was employed, the patient was subjected to reasonable cross-examination in order to obtain an accurate record.

#### CONSCIOUS ELABORATION OF SYMPTOMS.

The very common tendency of the war neurotic to elaborate consciously, or unconsciously, portions of his medical history is well known. In order to arrive at a more proper assessment, when conscious elaboration was strong, or merely present, the fact was recorded; 39% of patients were judged as showing conscious elaboration of symptoms. This figure was nearly constant in each type of psychiatric disorder. The factor was used in order to try to overcome one of the obvious defects of taking a history almost entirely from the patient. It corresponds fairly closely with the figure estimated for conscious elaboration in sixty cases of anxiety state examined in Australia (36%). Uncomplicated malingering was quite uncommon.

#### GENERAL FEATURES OF THE SERIES.

Factors common and applicable to the whole series (psychotics and mental defectives excluded) will be examined. These factors as they occur in the main diagnostic groups will be commented upon later.

#### Australian Imperial Force and Militia.

Although no data are available of the proportions of Australian Imperial Force and Militia troops involved, there appears to be no difference in incidence of psychological disorder in the two groups: Australian Imperial Force 58%, Militia 42%.

#### Age Grouping.

Of the patients, 70% were aged under thirty years. There is an interesting difference in age incidence in the various types of psychiatric disorder as shown in Table I. The table shows consistent age-group findings for patients suffering from anxiety states examined elsewhere.

TABLE I.  
Percentage of Patients Over Thirty Years of Age.

Psychiatric Disorder.	New Guinea Series.	Base Hospital Series.	Palestine Series.
Anxiety state ..	41	48	57
Hysteria ..	24	—	—
Fear state ..	15	—	—
Personality Inferiority ..	15	—	—

#### Rank.

The distribution of the 46% of psychiatric casualties according to rank was as follows: officers, 6%; non-commissioned officers, 23%; other ranks, 71%. This ratio presents no significant difference from casualties examined in Palestine and Australia.

#### Type of Stress.

As has been mentioned before, 54% of patients had been under no battle stress at all. This confirms the view that actual combat is only one of the factors causing or initiating psychological breakdown. The reason for the breakdown may be found in an examination of the "background" of the soldier.

Table II indicates the percentage incidence of the various factors usually regarded as unsatisfactory in 160 patients suffering from anxiety state who broke down without encountering any battle stress. Contrasted with this is the percentage incidence of the same factors operating in the case of men who broke down under the stress of front line action. That is, the men who broke down without front line stress arrived in the area with a much more faulty background and broke down under the mere stress of army routine.

TABLE II.

"Background."	No Battle Stress. (Percentage of Casualties.)	Battle Stress. (Percentage of Casualties.)
Unsatisfactory traits during training ..	52	27
Unsatisfactory civilian work record ..	25	14
Unsatisfactory school record ..	26	11
Previous nervous breakdown ..	31	14
Neurotic traits in childhood ..	41	35
Neurotic family inheritance ..	50	37

It is noted that neurotic traits in childhood and a neurotic family inheritance appeared not to play a very important role in deciding a soldier's ability to withstand stress.

#### Wounds and Illness.

Twenty-eight per centum of men showed evidence of physical illness just prior to, or in association with, their psychological upset. The main illnesses were malaria, scrub typhus and dysentery. Although this proportion of physically ill is probably not different from the proportion in any specified group of men in New Guinea, it is reasonable to state that such illness was at least a contributing factor in the mental illness.

Wounds were unimportant; 6% only had been wounded, and in these cases with few exceptions the wounds were trivial. Mental symptoms were prone to occur or be intensified when the wound began to heal.

**Blast.**

Eight cases of true blast effect occurred, of which six were among patients suffering from anxiety state. However, the soldier claimed blast as a causal factor in his illness in a much larger percentage of instances.

Blast effects were limited by the following criteria: (a) loss of consciousness following an explosion, with either recovery in a few moments (concussion) or loss of consciousness over a longer period, associated with signs of cerebral irritation or laceration; (b) bleeding from the nose or ears following an explosion with or without perforation of ear drums; (c) coughing up of blood following an explosion. It was assumed that a history of being "dazed", of walking back to the regimental aid post without remembering the details, or of other lapses of conscious attention, were hysterical phenomena and did not indicate cerebral damage.

**The "Background".****Unsatisfactory Traits during Training Period.**

All surveys of psychiatric patients in Tobruk, Palestine and Australia indicated that during the period of early training a proportion of these men showed unsatisfactory traits which might have presaged neurotic breakdown under active service conditions.

In the present series 42% of men exhibited these traits. The findings are divided into the various psychiatric groups as follows: anxiety state, 38%; fear state, 29%; hysteria, 32%; personality defect, 76%.

The commonest unsatisfactory traits were: (a) breakdown in route marching in the absence of physical disease; (b) frequent visits to the regimental aid post for symptoms of non-organic illness; (c) inability to pick up training; (d) frequent relegation of the soldier to cook-house or store or fatigue duties as a result of (c); (e) constant change of job or to different units in order to escape the rigors of training; (f) loneliness, shyness and inability to mix with his fellows. These and many other similar signs might have warned unit commanders that they were entering the field with a proportion of "dead weight". It further confirms the value of psychiatric examination of the troops and trainees who exhibit such characteristics.

The patient was always given an opportunity to state freely whether he wished to continue service; 63% of patients answered in the affirmative. No real reliance could be placed on this reply without an assessment of the motives which prompted it. In the anxiety states, of those men who actually did return to duty, 73% gave an affirmative reply, whilst of those who did not return to their units 54% gave the same reply.

**The Pre-War Record.**

In the pre-war record category a number of factors were investigated. (The percentage incidence for the total series is shown in Table III.)

TABLE III.

	Factor.	Percentage Incidence.
A	Presence of neurotic trait in childhood ..	40
B	Evidence of previous nervous breakdown ..	21
C	History of neurotic disorder in parents or siblings ..	48
D	Poor school record ..	29
E	Poor civilian work record ..	21
F	Presence of symptoms of neurotic disorder in civil life ..	54
G	Presence of domestic or sexual maladjustment ..	16

**A. Neurotic Traits of Childhood.**—The following were accepted as neurotic traits of childhood: nail-biting, enuresis persisting to the age of eight years or over, stammering or stuttering, excessive sleep-walking, excessive fears or undue shyness. As has been noted, these features, though present in a large percentage of cases, are not of much value in predicting whether a soldier will break down under stress; nor do they play much

part in influencing the soldier's ability to return to his unit. A thorough psycho-analytical approach was not attempted in the present series (nor, in the observer's opinion, was this either practicable or justified); but it is reasonable to expect that a soldier's behaviour under war stress will be determined to a considerable extent by the personality pattern, laid down in early life. Indeed, in a proportion of cases, regression to infantile behaviour became apparent after stress. However, the same importance does not seem to attach to these early emotional patterns as in the more complex cases of civilian neurosis.

**B. Previous Nervous Breakdown.**—A nervous breakdown was taken to mean a period of over seven days' incapacity owing to an illness presenting features such as insomnia, irritability, emotional changes or somatic symptoms for which an emotional basis was suspected. It is noteworthy that a number of men allege that they gave such a history at the original medical "boarding", but no comment was made by the examining medical officer.

**C. Neuropathic Family History.**—In 48% of the total number of cases, one or more parents or siblings exhibited "bad nerves", "fits", "hysterics", "neurasthenia", or "nervous breakdown". Close examination was made of the soldier's answer to this question to ascertain that the disability was one of true neurotic disorder or of mental instability. The figures do not suggest, however, that patients with a neuropathic family history are more likely to break down under stress. Among the patients suffering from anxiety state, it did seem that those who were able to return to their units gave such a history less frequently (in 35% cases) than those who could not be returned to their units (53%). A history of family neuropathy may be said to be significant only in the presence of other unfavourable factors.

**D. Unsatisfactory School Record.**—Twenty-nine per centum of neurotic casualties gave evidence of an unsatisfactory school record. They were unable to pass the first qualifying examination in a State school. Reference to Table II would suggest that this is a significant unfavourable factor.

**E. Unsatisfactory Civilian Work Record.**—Inability to hold regular employment (frequent change from one job to another without satisfactory reason) and other similar evidence of civilian instability was present in 21% of cases. Reference to Table II suggests that such men stand the stress of army routine and battle stress badly, and their breakdown is merely an extension into army life of a failure to adjust themselves to civilian standards.

**F. Presence of Neurotic Symptoms in Civil Life.**—If frank neurotic breakdown is excluded, 54% of soldiers admitted that symptoms of the same or similar character were present prior to enlistment. War service merely uncovered or accentuated these symptoms. The high figure is probably due to the fact that patients with personality defects almost invariably had such symptoms prior to war service. The figure will be shown later to be less than this in the case of hysteria and fear state.

**G. Domestic or Sexual Maladjustments.**—Domestic or sexual maladjustment was present in relatively few soldiers (16%). A notable minor part was apparently played by sexual difficulties in the formation of the psychological disorder. This shows a variation from civilian experience.

**DISPOSAL AND RESULTS.**

The object in disposal of the casualties was to maintain as many patients in the area as possible, if their retention was compatible with further useful service.

In general, it was considered inadvisable to return officers to the front line, although the decision depended on the type of neurotic upset. Senior non-commissioned officers were not returned to their unit unless there seemed no doubt that they could carry on satisfactorily. The practice of transferring officers who had broken down to base jobs is questioned. With notable exceptions, it is doubtful whether there is a useful place in the army for a neurotic officer.

The danger of an uncontrolled evacuation of neurotics to Australia is considerable. By example, other soldiers tend toward neurotic upset, and the numbers evacuated steadily increase. Once the war neurotic reaches a base hospital, there is a much poorer chance of his regaining front line status, even should he wish it by then.

As each hurdle in the way to return to realism is removed, the threshold for toleration of stress is lowered. The most satisfactory results have been obtained when the soldier is treated well forward. Comparison of figures for return to duty of psychiatric casualties personally observed illustrates this fact, that the nearer to an operational zone a soldier is treated, the better is the prospect of his return to duty.

TABLE IV.

*Return of Patients to "A" Class Duty when Treated in Operational or Non-Operational Areas, and Duration of Treatment.*

Area.	Percentage Returned to Unit.			
	Treated Near Operational Zone.	Duration of Treatment.	Treated Away from Operational Zone.	Duration of Treatment.
Tobruk	61%	Less than 3 weeks.		
New Guinea	48%	Less than 30 days.		
Palestine			22%	Four months.
Australia			10%	Four months.

The disposal of 310 psychiatric casualties in New Guinea was as follows: returned to unit, 48%; boarded "B" class, to remain in New Guinea, 27%; evacuated to mainland, 25%; readmitted to hospital, 5%.

#### ANXIETY STATES.

One hundred and sixty patients suffering from anxiety states were examined; they comprised almost equal proportions of men from Australian Imperial Force and Militia units.

A distinction has been made between anxiety state and fear state. This distinction was previously made in a report of psychiatric casualties in Tobruk. This distinction is at times artificial and at times real. It is artificial because 32% of men with anxiety states in this series admitted fears of a real war situation, and on the other hand 42% of patients suffering from fear state exhibited somatic equivalents of anxiety over a situation that was either unreal or long since ended. The distinction is at times real, because these patients suffering from fear state had with hardly any exception encountered real battle stress, and were predominately afraid of just that real stress. When the stress was removed, they did not exhibit the same tendency to develop a severe neurotic state.

It is emphasized, however, that a state of fear of battle stress is often encountered as an early feature in the history of anxiety neurosis of war.

The onset of anxiety symptoms was on the whole gradual, and occurred in both front line soldiers and lines of communication troops. It affected men who had previously passed through the campaigns of Libya, Greece and Crete without exhibiting signs of breakdown. Some of these admitted early fears after these actions, which lay dormant till they went into action in New Guinea. Others, previously immune in the desert, claimed that the different type of fighting—the hunting, hiding, listening part of jungle warfare—was more intolerable than open desert fighting.

The common symptom was of increasing exhaustibility; 81 men (51%) complained of this. Contrasting with this, a state of real physical exhaustion existing as a predominating sign could be verified in only ten cases (9%).

"General symptoms" included insomnia, irritability, anorexia, lack of concentration and excessive sweating.

These and other similar symptoms were grouped together and were noted in 116 cases (73%).

Headache (39%) and gastro-intestinal symptoms (36%) were common. Dizziness was complained of in 31 cases (19%).

#### Cardiac Symptoms.

Experience in the present war has shown a lower incidence of cardiac symptoms than in the first world war. This is borne out by the present figures. One explanation would seem to be that long and arduous route marching is not now so common with increasing mechanization.

In the New Guinea campaign, however, men were called upon to perform arduous climbing and marching feats, and coincidentally with this change, cardiac symptoms increased over those noted in the Libyan campaign.

The incidence of cardiac symptoms in patients examined in various psychiatric centres is shown in Table V.

TABLE V.

Station.	Number of Cases.	Percentage Incidence of Cardiac Symptoms.
Tobruk	70	7
Palestine	69	10
Australia	60	3
New Guinea	160	20

#### Fears and Anxieties.

On admission to hospital, the soldier commonly, but by no means always, showed overt anxiety, tenseness and lack of emotional control.

If anxiety concerning bodily disease is excluded, there was a vaguely defined sense of dread surrounding no specific object. This contrasted strongly with the frank fear states, in which the feared object was as tangible as aircraft or a trench mortar. In patients from lines of communication areas and also in a number from the battle area, it was common to find the somatic equivalent of anxiety presented with no great evidence of emotional upset. In the few patients investigated under "Pentothal Sodium" "narco-analysis", underlying fears and anxieties were often revealed. The explanation of this commonly revealed emphasis on somatic equivalents referable to various organs of the body, may lie in the fact that in the army, qualification for a place on the sick parade is thought by many soldiers (and sometimes regimental medical officers) to be the exhibition of a somatic complaint. With increasing admission to hospital and medical investigation, there is a danger that the somatic equivalent may completely overshadow the underlying state of anxiety.

#### Assessment of the Mental State.

##### Personality.

Accurate and full personality studies were not practicable. Impressions only were gained after several interviews and by observation of the patient's behaviour in the ward. Such assessments were, of course, a composite of pre-war and post-enlistment personality.

On such a basis—"personality"—the entire group was graded in Table VI.

TABLE VI.

Type of Personality.	Number of Cases.	Percentage Incidence.
"Good"	20	12
"Average"	75	47
"Poor"	65	41

The incidence of anxiety states in the Australian and Palestine series closely followed the foregoing findings for New Guinea.

#### Associated Hysterical Features.

Many anxiety states (59 cases—37%) were coloured by hysterical features, and in fact would be better classified

as "anxiety hysteria". These features included transient paresis, "black out" hyperventilation, bizarre "turns" and incessant noisy vomiting. Such symptoms apparently represented release phenomena from open anxiety. The more spectacular hysterical additions, such as pronounced theatricalisms in manner and speech, may merely represent an exhibitionist pointer to underlying anxiety.

#### Depression.

A state of mental depression was present in 43 cases (27%). It seldom reached the intense psychomotor slowing met with in uncomplicated depressive states, and in most cases there was an absence of guilt feelings or tendency to self-depreciation. Patients with associated depression appeared to react well to a short series of induced convulsions, after which a simpler anxiety state became evident.

#### Hypochondriacal Trends.

In 33 cases (21%) a hypochondriacal colouring to the anxiety state was obvious. There was not the same inflexible preoccupation with a visceral sensation as is seen in true hypochondriasis. It was noted that patients exhibiting these tendencies had frequently not seen front line service and had come to psychiatric examination after a protracted search for a physical cause for symptoms had been made.

#### Assessment of Attributability.

The important question of the part that warfare plays in the production or aggravation of neurotic states was investigated because of its post-war implications.

1. In 55 cases (34%) it could be fairly definitely ascertained that the condition had existed in its present or similar state before the patient's enlistment.

2. In 83 cases (51%) there was evidence that the symptoms of anxiety state were present prior to enlistment, but in less incapacitating degree, and that they had increased during war service.

3. In 22 cases (14%) the condition seemed wholly attributable to war service.

#### Treatment.

Patients were admitted to a general medical ward along with patients suffering from various disorders such as malaria, scrub typhus and other medical diseases. A full physical examination was made at once and a psychiatric history was taken. An assessment of the nature and degree of disability was made at the time, and this was modified if necessary while the patient was under observation at the hospital.

Adequate physical rest was provided by sedation in those cases in which physical factors were present. In severe cases of insomnia heavy sedation with "Nembutal", phenobarbital and sulphonal was used.

Within a week or two, when full physical improvement had taken place, an explanation of the mechanism of the disorder was attempted in each case. As soon as practicable, the non-commissioned officer in charge of the ward found occupation for the patient, who was encouraged to keep out of bed in the daytime. The occupations were simple in severe cases, and consisted in trivial ward duties on a roster system. Other patients were allotted jobs in the dispensary, pathology laboratory, carpenter's shop, quartermaster's store or plumber's shop, or as hospital orderlies. Fairly strict adherence to times of working were insisted upon. Some patients worked full time as orderlies, and these were allowed to live in the men's lines. Gardening and minor construction work about the wards was encouraged. No regular occupational therapy centre in the hospital was available. Pre-service trades were exploited carefully in the selection of jobs for the patients.

Gastro-intestinal symptoms were investigated radiologically and were usually treated with subcoma doses of insulin, only 40 to 100 units per day being used. Afternoons were employed in graduated exercise and general physical therapy. Incessant vomiting was often relieved by the passage of a nasal feeding tube *per os*, which was

left *in situ* till the vomiting ceased. Regular feedings of high caloric value were given hourly through the tube.

Cardiac symptoms were treated by an attempt, by means of graduated general exercise, to reproduce each day the symptoms complained of. No suggestion was made that the exercise was directed towards the heart. Repeated reassurance as to the general efficiency of the body as a machine in spite of distressing sensations was made when the symptoms occurred. In such a way a crude attempt was made to remove the "sales value" of cardiac symptoms and to build up physical exercise to a point at which it became obvious even to the patient that he was doing in the physiotherapy department no less arduous a job than in ordinary manual work.

#### Psychotherapy.

General superficial psychotherapy was practised in all cases. No serious attempt was made to explore deeply seated conflicts. In military psychiatry there are some disadvantages in establishing a *rapport* in a field hospital that would be comparable to that desirable in peace-time practice, or in establishing a condition of undue dependence of patient on medical officer. The requirements of a military machine, with a quick return of soldiers to their duties if they are capable of doing them, make it necessary for the medical officer to overlook mental maladjustments that are not severe or incapacitating. However, when the patient was maladjusted in his army job, serious attempts were made to remedy this as far as practicable, by means of personal communication with his unit, by the facilitation of his transfer to a more suitable occupation, or finally by medical "boarding".

#### Shock Therapy.

Shock therapy was carried out in thirteen cases, in both convulsive and preconvulsive dosage. It was found most useful to use a convulsive dose in those cases in which a strong depressive element was noticeable in the anxiety state, or in which there was a strongly superadded hysterical trend: "Cardiazol", "Leptozol" or "Metrazol" was used.

In anxiety hysteria, "Cardiazol" was employed simply as a crude method of massive suggestion. Subconvulsive doses were purposely given in those cases in which it was thought that a strong conscious elaboration of symptoms was masking the real picture. The dose given was about three cubic centimetres, and it produced, as is customary, most intense feelings of apprehension and unreality. It was found that after the injection the patient commonly presented a more unvarnished and accurate picture of the true underlying mental state.

#### Insulin Therapy.

Two patients, both suffering from severe anxiety state with anorexia and other symptoms, were treated with the production of full hypoglycaemia. In each case twenty-eight days' treatment was used, up to 280 units of insulin being used per day. A state of "sopor" or subcoma was usually induced, and to each patient six full coma doses were given. With an increase in the number of admissions to hospital the method had to be abandoned for less time-consuming work; moreover, it was found that sweating was more excessive than in cooler climates, and the patient seemed too exhausted in the afternoons to carry out the customary afternoon routine of light exercise or recreation usually advised.

In a series of twenty patients similarly treated in Australia, full hypoglycaemic coma (up to thirty inductions) was employed. Patients treated were all in the "D" or "unemployable" class. It was possible to raise all these patients to the category of "employable D class", fit for discharge from the army. Three patients were made "B" class, and one returned to "A" class duty. A small experience in insulin therapy has suggested that full coma dosage may be preferable to less heavy dosage in a ward lightly staffed with nursing personnel, because it was common that patients in light hypoglycaemia became excitable and were more difficult to manage.

In this series, low insulin dosage was given (40 to 100 units), the dose stopping short of the induction of severe sweating. This was found beneficial in increasing weight and appetite in "gastric neurosis". It was employed for fourteen patients, of whom ten could be returned to their units.

#### FEAR STATE.

An admission of a substantial fear of war stress was present in all of the various neurotic states. Its incidence was as follows: fear state, 100%; anxiety state, 32%; hysteria, 22%; personality inferiority, 20%. Included in this category of fear state are only those cases in which fear was the dominant and sometimes the sole feature. The fear differed only from the fear of a normal man in action, in that it was undisciplined or incapacitating fear. Of these 40 patients, 33 had a history of actual battle stress in New Guinea. Of the remainder, most had seen battle stress in the Middle East.

#### Features.

The condition often came on gradually after short exposure to stress. In 21 cases it occurred in the first action. The commonest objects of fear were high-level and low-level bombing, automatic weapons, trench mortar fire, and mountain gun fire. It occurred more readily in men who were "pinned down" for long periods or were in such a position that retaliation was impossible.

Common signs of onset were insomnia, lack of concentration, anorexia and preoccupation with listening. The over-alertness went hand in hand with ineffectiveness once action came.

The affected soldier would crouch shivering in the trench, unable to move, or alternatively he would become restless, screaming and running about in a disorientated way. He presented a picture of dejection or "frozen" terror. In some cases he had a mask-like facies, slumped attitude and a coarse, slow tremor of the hands, whilst in others he was alert, over-active and restless, with a wide-eyed, startled gaze. On evacuation from the battle zone the patient rapidly recovered; but in twelve cases a condition of "sensitization" was noted. By this is meant that the soldier, even though removed from the area of stress, remained acutely apprehensive, and attached this fear reaction to objects and situations resembling those of the original stress. Such men shrank at the sound of an aircraft motor, or a vehicle changing gear, at blasting or firing practice. Some could not rest at night until all lights were extinguished. Sudden voices in the dark terrified them—even the cracking of a twig outside the ward would evoke a panic reaction. The patient admitted that these reactions were illogical. After some period in hospital, some men developed anxiety symptoms. This occurred in twenty cases.

Hysteroid features developed in sixteen instances; depression was not an uncommon latent symptom; fifteen patients showed evidence of feelings of guilt or of unworthiness. Such feelings were by no means so deep as in uncomplicated depressive states.

In a large number of cases the condition settled down completely after the patient had been in hospital for a week or so, and 25 of the men were able to be returned to duty.

#### Treatment.

Treatment was on the same lines as in the anxiety states. The mechanism of normal fear reactions was explained, rest was given, and every possible attempt was made to retain the soldier's pride in himself. He was assured that repeated actions brought a tolerance for fearful stimuli that enabled him to continue useful service.

#### Results.

Forty-one men were retained in the area in the following categories: "A" class, 25; "B" class, 16. Seven men were evacuated to the mainland. Only one man had to be readmitted to hospital; he was suffering, not from a fear state, but from malaria. He had gone through the Gona campaign without a recurrence of symptoms.

#### CONVERSION HYSTERIA.

Thirty-seven patients suffering from conversion hysteria were examined over the period mentioned. This group included only those cases in which it was considered that hysterical dissociation was the dominating element of the psychological disorder, and in which any pictures of anxiety or fear were of minor significance.

It must be stated, however, that 21 men showed some anxiety symptoms or their visceral equivalents; but these equivalents were not considered to be part of the hysterical mechanism, but rather the evidence of the fixation of autonomic disturbances associated with the anxiety. Those few men (eight) who admitted a state of fear did so only after some discussion, or else described their fear in a bizzare theatrical manner.

Examination of age groups and rank revealed no significant variations from the figures for other psychological disorder.

#### The Stress.

Twenty-four men had encountered excessive or average battle stress. Of the nine who had no history of battle stress, six had presented similar symptoms in civil life.

#### Wounds.

Wounds had been sustained in only five cases; they were trivial, and seemed to play no part in the production of hysterical state.

The occurrence of unsatisfactory traits in training was much the same as in fear and anxiety states. The state of the basic personality as assessed showed the same variations.

Unexpectedly, perhaps, the number of men who appeared consciously to elaborate their disability picture was very little different from that found in anxiety states. It may have been expected that these men, having blandly accepted a somatic dissociation, would not need to elaborate their disability.

#### Hysterical Features Encountered.

##### Stuttering.

Stuttering occurred in seven cases, and varied in severity from a hesitancy of speech to almost interminable difficulty in the articulation of small words. It was associated with tongue protrusion, with facial and shoulder tics, and with disorganization of regular breathing. In four cases the condition had been present in early life, but had either reappeared or been grossly exaggerated after a terrifying experience in the battle area. In all but one of these cases, improvement was obtained back to the state of disability as it previously existed prior to stress. This residuum was not treated.

Among patients who suffered speech disability in the absence of a previous history, cure was obtained in only one case. The treatment included breathing and speaking exercises, relaxation exercises and suggestion under "Pentothal Sodium" narcosis.

One patient suffering from aphonia was treated successfully with "Cardiazol" convulsive therapy.

##### Disturbances of Consciousness.

Disturbance of consciousness occurred in 23 cases. Hysterical fugues are included under this heading for the sake of convenience. Twelve patients showed the fugue type of dissociation. The more classical fugue of several hours' or days' duration was more frequent a day or so after the onset of hysteria or whilst the patient was in hospital.

The onset in other cases of disturbance of consciousness was shortly after an explosion or a trivial blow on the head. It produced loss of consciousness with no retrograde amnesia followed by stupor or a dazed state. It was frequently associated with incoordinated, irrational behaviour. Amnesia lasted from half an hour to several hours and was patchy in intensity, commonly terminating when the soldier reached the regimental aid post. In no case did he appear to endanger his life whilst the dis-

turbance of consciousness was present. A state of hysterical confusion was present in five cases when the men were admitted to hospital.

#### *Convulsive Seizures.*

Convulsive seizures occurred in seven cases. Although self-injury was not common, it occurred in two cases. The seizures were usually prolonged. Each patient who suffered from fits was investigated by X-ray examination of the skull and by lumbar puncture.

#### *Theatrical Behaviour and "Pseudo-Depression".*

Theatrical behaviour was noted in ten cases. Theatricalism showed itself in the patient's description of the original situation which he claimed caused his breakdown. He usually described a composite bizarre picture of horror far in excess of reality. During air raids or other stress he reacted by a grossly dramatized show of terror and fear—quite different from a real fear reaction.

"Pseudo-depression" occurred in four cases. By this is meant the miming of a state of depression, not associated with real psychomotor retardation, inconstant, and usually present only whilst there was an audience.

As would be expected, 32 patients expressed a strong desire to remain in front line duty; this figure compares badly with the number who could be really returned to the line.

#### *Other Features.*

Other features noted were: dysphagia (two cases), paresis of limbs (two cases), amblyopia and deafness (one case) and hysterical pain (one case).

#### *Treatment.*

Treatment included suggestion, persuasion with and without "Pentothal Sodium" as an adjuvant, and "Cardiazol" convulsions which were induced in fourteen cases and proved a satisfactory and quickly applicable method of producing massive suggestion. When two convulsive seizures failed to produce results, further convulsive therapy was ineffective. In contradistinction to some experience, prolonged persuasion rather than rapid suggestion methods were effective. This was particularly so in speech and motor disorders. Ten patients were "cured", the condition of thirteen was improved, the disorder of eight was changed to anxiety symptoms, and the condition of nine was not improved.

"Cure" of a symptom is to be regarded with suspicion, as the basic personality remains quite unaltered. Improvement in symptoms usually permitted the soldier to return to his unit, if the hysterical symptom was not a nuisance or incapacitating. Eight patients, although cured or improved in regard to hysterical features, developed anxiety phenomena during treatment.

No great attempt was made to treat the five officers presenting hysterical disorder, it being obvious that they were no longer reliable in this or any other front line area.

#### *Disposal.*

Of these patients, twenty were returned to their unit, five were "boarded" "B" class, to remain on the island, twelve were evacuated to the mainland and nine readmitted to hospital. The readmission rate is an index of the poor prognosis in hysteria. All who were readmitted to hospital were evacuated to the mainland.

#### *PERSONALITY INFERIORITY.*

Included in the "personality inferiority" series were those soldiers who, by personality make-up, were unable to cope with army life even in the absence of battle stress. They entered the army with personality weakness that had revealed them as inadequately endowed to cope with civilian social demands. Entering a new field where a flexible, well-integrated personality was called for, these men failed as lamentably as in civilian life. Such patients include the following types.

#### *The Inadequate Soldier.*

The inadequate soldier reacted poorly to discipline or was bewildered by it. He had little desire to serve, or took little pride in doing so. Such a man had never really taken his full place in training and had drifted into the protected waters that eddy around the cook-house or messes, or he had been allowed to miss full training routine because of some quickly advertised minor physical disability. Thus the man, barely managing the routine of training, quickly broke down when any stress was applied, and became shiftless and dejected—the despair of his officers and a regularly recurring shadow across the regimental aid post tent door.

#### *Schizoid or Paranoid Types.*

The schizoid or paranoid types of men were resentful of discipline, "queer or solitary" or argumentative and quarrelsome. They never fitted into the social life of their fellows; they were often teased, friendless, lonely or depressed.

#### *Frankly Psychopathic Types.*

The perverts (pathological thieves and liars, and those with criminal tendencies), or in general, those constitutionally unfit to keep "on the rails" of normal social behaviour, are included in the frankly psychopathic group.

#### *Analysis of Findings.*

Forty-five patients were examined; 27 were from Militia units and the rest from Australian Imperial Force units; 38 men were aged under thirty years; 41 men were "other ranks" and the rest were non-commissioned officers. None had been subjected to heavy battle stress in excess of the average, and only seven had encountered any war stress in front line action. None had received wounds in action, and thirteen only had some coincidental physical disability.

An examination of their training record and history showed that 34 had shown unsatisfactory traits that foretold of future trouble. Six had been convicted for military offences. Thirty frankly admitted they had no desire to serve.

An examination of family and personal history revealed the following unsatisfactory background:

Neurotic traits of childhood ..	17 cases
Previous nervous breakdown ..	13 cases
Bad family history ..	28 cases
Poor school record ..	16 cases
Poor civilian work record ..	21 cases
Home maladjustments ..	9 cases

#### *Symptoms.*

More than half the men complained of exhaustion, and nine frankly admitted terror at the idea of going back to the front line.

Anxiety symptoms were present in 28 cases. These symptoms on the whole were superficial, and lacked the signs of anxiety and the symptom pressure found in the true anxiety state. It is probable that in a number of cases the symptoms were consciously elaborated. Twenty patients were judged to be consciously elaborating their symptom pictures.

#### *Psychiatric Findings.*

##### *Schizoid Traits.*

Schizoid traits were present in seventeen instances. These included solitariness, difficulty in "mixing", day dreaming, and that vague behaviour disorder best described by his fellows as "queerness".

##### *Paranoid Types.*

Six men were resentful of discipline, of the army generally, or of their alleged medical mismanagement.

##### *Immature Personalities.*

The number of immature personalities was fifteen. These men were commonly timid—dependent on others without aggressiveness, drive or initiative—or were badly lacking in common judgement. More than one, after hopelessly failing in lines of communication units, expressed the desire to join the "Commandos".

*"Ineffectives."*

Twenty-four patients were judged to have, amongst other minor traits, general ineffectiveness. This term embraced non-specific weaknesses of personality that made front line soldiering for them an impossibility.

*Marked Psychopathy.*

Severe degrees of psychopathy were seen in five cases. These men had a bad civilian and army record and for military reasons rather than on psychiatric ground were returned to their unit for disposal through non-medical channels.

*Physical Findings.*

General physical inferiority was present in seventeen cases. This included poor muscular development, bad stance, narrow chest and "pot-belly".

*Treatment.*

The problem was one of correct disposal. In a field hospital no real attempt could be made to rehabilitate these men. Ten men were returned to their units with a reasonable hope that they could continue in their jobs—partial liabilities, but still useful.

Eleven men were returned to their units with a suggestion that a "niche" be found for them; in some cases the application of ordinary methods of discipline were suggested to ensure a reasonable level of efficiency commensurate with their capabilities.

If proper assimilation in the force was impossible, it was recommended that these men be removed from the army through non-medical channels, because the psychiatric condition had been in no way aggravated by war service. Treatment in hospital did not help these misfits, and in many cases it made them worse. It served no useful purpose to evacuate such men through hospital channels, and such a procedure would have been an injustice to "A" class men doing arduous jobs.

*Medical "Boarding".*

Fifteen men were "boarded" "B" class to remain on the island, and nine men were evacuated to the mainland. Readmissions were few (two men).

By medical board or a written recommendation to the unit commander, if the unit could retain "B" class men, these soldiers with "limited personalities" were placed in the job they could do best.

This group of casualties is presenting serious problems in the economy of the fighting force. The time and place for exclusion of these less well-endowed men is at enlistment or during training after examination by a psychiatrist. Once, however, these men have been passed for service in an operational area, they are best used in their limited capacity, for their removal from the area will influence the decision of other men to seek the same avenue of escape.

*PSYCHIC STATES.*

Fourteen psychotic patients were examined; the diagnosis of schizophrenia was made in eleven instances. Of the schizophrenics, only one had seen any battle stress, although the shortest period of total service in the army was thirteen months. Three had served in the Middle East.

A reliable history from these patients was available in a few cases. Four at least had suffered previous schizophrenic attacks. As would be expected, departure from normal behaviour was quickly noticed by the patient's fellows, and his presentation for treatment was therefore probably earlier than it would have been in civil life.

The most common abnormalities were apathy, detachment, impulsive actions and delusional beliefs, commonly with a paranoid flavour. All patients but one were aged under thirty years.

Treatment was limited, because the patients were evacuated from the area as soon as transport was available. Four were treated with "Cardiazol" convulsions. No more than five seizures were induced in any one case. One patient had complete remission after "Cardiazol" treatment and two had partial remissions. The other three

psychotic casualties included one case of mania and two of severe depression.

Both depressives were considerably improved after three injections of "Cardiazol", and at this stage were evacuated to the mainland.

*CONGENITAL MENTAL DEFECT.*

It was rare for soldiers to be referred to hospital because of uncomplicated mental defects, because the gross examples had been weeded out before coming to the area.

Six patients were examined, and the defect was uncomplicated by any other significant psychological disorder. The Otis test was performed in these cases, and in each very low scores were registered. Most stress, however, was laid on a report from the unit; a report from the soldier's unit was most useful in assessing these patients. Of the six men, two were returned to the unit, two were boarded "B" class and two were evacuated to the mainland.

Milder degrees of mental defect were noted in 27 cases (8.7%) in a survey of the total series of 310 cases. The chief features were those of fear state, anxiety state, hysteria or personality inferiority. In all cases the basic mental defect adversely affected prognosis.

*CONCLUSIONS.*

1. The incidence of frank psychological disorder at an Australian general hospital in New Guinea is 2.1% of patients admitted.
2. The campaign in New Guinea has introduced psychological hazards new to Australian troops.
3. A history taken from the patients as early as possible after the original stress, corroborated if possible, is the most valuable and accurate one.
4. Uncomplicated malingering is uncommon.
5. There is no great difference in incidence in psychological disorder in Australian Imperial Force and Militia units.
6. Anxiety states are exhibited more frequently by troops over thirty years of age than are fear states, hysteria or personality defects.
7. The neurotic officer is a bad medical investment.
8. An unequivocal history of true "blast" effect is uncommon in psychiatric casualties.
9. Evidence of an unsatisfactory "background" is common, and such men break down with little or no battle stress.
10. Unsatisfactory traits in training are a useful guide in predicting breakdown under battle stress. The adverse effect of a neuropathic family history is not proven.
11. A closer examination of the actual pre-war history of the soldier at recruitment is of value in predicting his future behaviour.
12. There is a risk in uncontrolled evacuation of war neurotics from an operational zone to Australia.
13. If a soldier is treated reasonably near the front line, the prospect of his return to his unit is much greater than if he is evacuated to a base hospital.
14. Anxiety state is the commonest psychiatric disorder.
15. There are substantial differences and similarities between this condition and fear state.
16. Cardiac symptoms have been commoner in the New Guinea campaign than in the Middle East.
17. Either the basis for the neurotic reaction, or its presence in entirety, is a disability that is found prior to enlistment in 85% of cases of anxiety state.
18. So-called "active" methods of organic therapy have some place in treatment in a forward hospital.
19. A condition of "sensitization" in cases of fear state is often incapacitating.
20. Hysteria has a poor prognosis as regards continued front line duty.
21. The soldier with personality defects is a quickly recognized medical liability and should be removed from the army at an early period of his training. Once he is established in the army, his problem is one of correct disposal within the service.

*ACKNOWLEDGEMENT.*

I wish to thank the Director-General of Medical Services, Australian Military Forces, for permission to publish this report.

## Reports of Cases.

### A CASE OF HÆMATEMESIS TREATED BY INDIRECT AND DIRECT BLOOD TRANSFUSION.

By JOHN A. MCLEAN,  
Melbourne.

THE illness of this patient was thought worthy of record because of the exceptionally large quantity of blood vomited and given by transfusion, and because massive drip transfusion of citrated blood was ineffectual in stopping hemorrhage, whereas a favourable response was manifest after direct blood transfusion.

#### Clinical Record.

P.F., a married woman, aged twenty-nine years, was admitted to the Alfred Hospital on February 20, 1943. Four hours previously she had vomited about one pint of bright red blood. For ten years she had suffered from dyspepsia and on two previous occasions had experienced haematemesis. The first time this occurred was on May 5, 1936, when she was admitted to the Alfred Hospital, after vomiting a large quantity of blood; she was given two pints of blood by drip transfusion, after which her condition improved and she left hospital on June 5, 1936. At this time an X-ray examination was made, and no organic lesion was detected in the stomach or duodenum. In August, 1942, the patient had another small haematemesis; she was admitted to the Warrugal Hospital, where she remained for three weeks. She returned to Melbourne and attended the out-patient department of the Alfred Hospital. An X-ray examination was made; the appearances suggested the presence of an ulcer on the posterior wall of the stomach at the cardia. No abnormality was detected in the duodenum. The patient was given instructions with regard to her diet, and an alkaline powder was prescribed. Since then she had suffered from epigastric pain before meals; this had become worse. She has domestic worries, which were accentuated prior to the latest attack of haematemesis.

On examination, the patient was seen to be a pale young woman lying quietly in bed. Her pulse rate was 80 per minute. The systolic blood pressure was 102 millimetres of mercury and the diastolic pressure was 80. The haemoglobin value was 75%. Examination of the abdomen revealed epigastric tenderness. No other abnormality was found. The patient was given the Meulengracht diet. An alkaline powder was prescribed, one drachm to be taken three times a day. Tincture of belladonna (seven minimis) alternating with olive oil was to be taken before meals. The next day she vomited some blood and undigested food. Four days after her admission to hospital she had a severe haematemesis and vomited on two occasions a total quantity of 56 ounces of blood. Her systolic blood pressure fell to 50 millimetres of mercury. She was given two pints of citrated blood by the drip method and her condition improved. Two days later she had another severe haematemesis, and during the following seven days she vomited large quantities of blood on four occasions and passed two large melena stools. During this period she was receiving a continuous drip transfusion and was given a total quantity of eighteen pints of citrated blood (see Figure 1). But despite this massive infusion of blood her condition remained very serious. A surgeon who was consulted advised against operation. At this stage she was first seen by me. She had a drawn, anxious expression, and her breath was uremic. Her haemoglobin value was 30% (Haldane). The systolic blood pressure was 80 millimetres of mercury and the pulse rate was 120 per minute. Two donors were used consecutively, and she was given a direct transfusion of forty ounces of blood, after which her condition improved. The haemoglobin value rose to 60% and her facial appearance was correspondingly improved. This improvement was sustained for two days, when she passed a large melena stool, and the haemoglobin fell to 45%. She was given another direct transfusion of forty ounces of blood from two donors. Owing to a misunderstanding, this transfusion was given in the operating theatre; while the patient was returning to the ward a slight accident occurred in the automatic lift, she was unduly disturbed, and immediately vomited more blood. The haemoglobin value fell to 35%. Some hours later she was given another direct transfusion and the haemoglobin value rose to 55%. From this time onwards there was a steady improvement in the patient's condition, and four weeks later the haemoglobin value was 80%.

Treatment other than blood transfusion had been as follows. One week after her admission to hospital the patient became intolerant of the Meulengracht diet, and during the next seven days she was taking fluids only. With the improvement in her condition after the direct blood transfusions, she was able to take a more solid diet including steamed fish, minced meat and purées. About two weeks after her admission to hospital the alkaline powder was replaced by "Amphojel", and she was given a ferrous sulphate mixture in doses of one drachm three times a day after meals.

X-ray examination was carried out on April 12, 1943; no lesion was seen in the stomach or duodenum. She was discharged home from hospital on April 18. She was examined again three weeks later, when her general condition was very good. A blood examination was made at this time, and gave the following result: the haemoglobin value was 90%, the red cells numbered 4,300,000 per cubic millimetre and the white cells 10,000 per cubic millimetre, and the blood platelets numbered 280,000 per cubic millimetre. In a blood film the red cells appeared normal. A differential leucocyte count gave the following findings: band metamyelocytes, 4.0%; neutrophile cells, 63.0%; lymphocytes, 28.0%; monocytes, 6.0%.

Her condition has remained good, and her weight has increased by one stone. A further X-ray examination on June 18 revealed no abnormality in the stomach or duodenum.

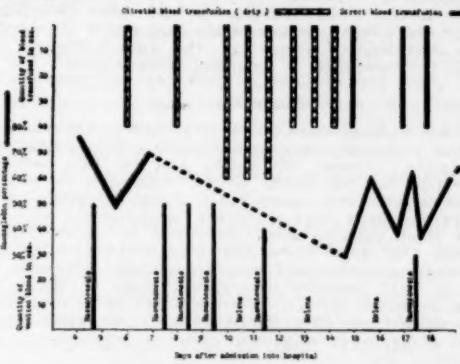


FIGURE 1.  
Showing haemoglobin percentage, attacks of haematemesis and melena, and blood transfusions, during critical period in hospital.

#### Comment.

The direct blood transfusions were given by the rotary pump method as described by Dr. Julian Smith.<sup>(1)</sup> As two donors were used, the technique was modified as follows. After twenty ounces of blood had been taken from the first donor, the needle was immersed in the saline reservoir, the remaining blood was flushed through and followed by a slow infusion of saline solution. The tubing was then removed from the pump, another sterile tube was inserted, and the system was filled with saline solution in the usual manner and connected to the recipient's needle, which remained *in situ*. The first donor was then replaced by the second donor and another twenty ounces of blood were transfused. Each transfusion was finished in five or six minutes, the change-over took three to five minutes, and the total transfusion of forty ounces of blood plus a few ounces of saline solution was completed in an average time of thirteen minutes. The immediate effect of such rapid transfusion of blood was entirely favourable, and no untoward reactions occurred.

Without a visual examination, the source of hemorrhage could not be accurately determined, but it was presumably from an ulceration of the mucous membrane of the stomach or duodenum. The history of the patient was suggestive of a duodenal ulcer; but an X-ray examination in August was indicative of a possible gastric lesion. In view of the three other negative X-ray reports, the cause of hemorrhage was thought to be an acute ulceration, which would be presumably gastric rather than duodenal.

The failure of the massive drip blood transfusions to arrest hemorrhage was attributed to the difference in the quality of the blood. Stored citrated blood cannot have the same quality (as of a living tissue) as is presumably present in blood transferred in a continuous flow from the circulation of the donor to that of the recipient, in a time interval as small as five seconds.

According to Rowntree, Brown and Roth,<sup>10</sup> the mean value for blood volume in underweight women is 91.3 cubic centimetres per kilogram of body weight. The patient weighed 53 kilograms, and therefore her blood volume was about 4.8 litres or 8.5 pints. During a period of eight days she was given eighteen pints of citrated blood, which was more than twice the estimated capacity of her vascular system; it is therefore assumed that almost all the blood contained in her blood vessels was bank blood. In these circumstances, it can readily be believed that the gastric mucosa remained in an ulcerated condition and bleeding continued; on the other hand, when by direct transfusion blood in the living state was introduced into her circulation, there was manifest a noteworthy improvement in her general condition, the gastric lesion healed and hemorrhage ceased.

I have given direct blood transfusions to forty patients suffering from haematemesis due to gastric or duodenal ulcer. All the patients in this series recovered. The haemoglobin value, which was estimated in thirty-two cases, was either 50% or below 50%; in five cases it was below 30%. Twenty-nine patients were given only one transfusion, while eleven required more than one transfusion. Two patients underwent surgical treatment and were given direct blood transfusions before and after operation. Massive drip transfusions had been previously administered in seven cases and had been ineffective in stopping hemorrhage.

The successful treatment of seventeen patients in this series by direct blood transfusion has been previously reported;<sup>11</sup> the clinical history of the case which is recorded above is additional evidence of the superiority of the method in the treatment of recurrent haematemesis.

#### Summary.

A married woman, aged twenty-nine years, was admitted to hospital suffering from haematemesis. She complained of indigestion, present for years, and on two previous occasions had vomited blood. On her admission to hospital her condition was fairly good; but the next day she vomited blood, and two days later a further haematemesis occurred. She was given massive drip transfusion of citrated blood, but during the next seven days vomiting of blood and melena stools occurred at frequent intervals; although she received a total quantity of eighteen pints of blood, her condition remained serious. During a period of four days, she was given three direct blood transfusions, which had a beneficial effect, and subsequent progress to recovery was uneventful.

#### Acknowledgement.

I am indebted to Dr. M. D. Silberberg, who has kindly permitted me to report this case.

#### References.

<sup>10</sup> Julian Smith, senior: "The Transfusion of Whole Blood", *The Australian and New Zealand Journal of Surgery*, Volume X, Number 4, April, 1941, page 384.

<sup>11</sup> L. G. Rowntree, G. E. Brown and Grace M. Roth: "The Volume of the Blood and Plasma in Health and Disease", 1929, page 59.

<sup>12</sup> J. A. McLean: "Treatment of Certain Blood Diseases and of Haematemesis by Direct Blood Transfusion", *THE MEDICAL JOURNAL OF AUSTRALIA*, Volume II, Number 11, September 13, 1941, page 281.

## Reviews.

#### WHOOPING COUGH.

WHEREAS many of the contagious diseases have, in modern times, yielded to discoveries in prophylaxis and in therapy, whooping cough remains a serious health problem. The appearance of a monograph on the subject is very welcome. In "Whooping Cough" J. H. Lapin has given us not only the fruits of his personal experience with the whooping cough clinic of the Bronx Hospital, New York, but also an exhaustive study of the writings of other investigators.<sup>1</sup>

All the important phases of whooping cough have been covered adequately in this monograph, which is well illustrated with photographs, tables and charts, and is easy

<sup>1</sup> "Whooping Cough", by Joseph H. Lapin, B.Chem., M.D.; 1943. Springfield: Charles C. Thomas; London: Baillière, Tindall and Cox. 9" x 5". pp. 249, with 64 illustrations. Price: \$4.50.

to read. Some chapters, notably that on immunology, may be disproportionately long, but only for the reason that the theoretical conceptions presented in the literature are so conflicting that more space is needed for an adequate survey.

Of particular interest are the author's statements (page 166) that "the efficacy of pertussis vaccines (in prophylaxis) . . . can now be considered proven quite adequately by serological tests, animal protection tests and epidemiological studies"; and, in a chapter on public health recommendations (page 211): "Active immunization by pertussis vaccine in the second half-year of life should be available on a large scale under controlled conditions."

Altogether this book forms a valuable contribution to the literature of the disease. It should be in the hands of every medical officer of health and every paediatrician, while it may be read with interest by general practitioners.

#### PATHOLOGICAL HISTOLOGY.

THE second edition of "Pathological Histology" by Robertson F. Ogilvie has made its appearance.<sup>1</sup> The fact that a second edition has been found necessary so soon after the first appearance of the book is a tribute to its usefulness and to its popularity.

In the preface to the first edition it is stated that the book is designed "to act as a companion to a standard text-book of pathology". It is important to bear this in mind, and to recognize that this volume is complementary to a standard text-book and is to be looked on as an aid to the study of histological preparations; it does not replace either of these essentials in the training of a medical undergraduate or graduate.

The text of the first edition has been revised; the size of the book has been increased by 75 pages and the number of illustrations from 220 to 235. The illustrations are photomicrographs in colour, the work of Mr. T. C. Dodds, and they are an excellent collection. The arrangement of subjects in the book has not been altered, and the mode of presentation remains the same; the text has been revised, and the high standard attained in the first edition has been fully maintained. In spite of the war, the book is most attractive from the point of view of paper, printing and binding. Both author and publishers are to be congratulated on the success of this publication which has been found by students of pathology to fill a real need.

#### TEXT-BOOK OF MIDWIFERY.

IN his "Textbook of Midwifery",<sup>2</sup> Wilfred Shaw does well to emphasize his three principles: first, the majority of women deliver themselves spontaneously without much trouble; secondly, great clinical judgement is required to decide if and when interference is indicated; and thirdly, if any obstetrical manipulation is carried out dexterity and operative skill of a very high order are needed. This book is very concisely written and well set up and printed. The diagrams are good and illustrate well the points emphasized in the text. The author stresses the importance of midwifery from the sociological point of view in regard to the future possibilities of any child as well as to the mother. Brevity and clarity are outstanding features throughout. The remarks on episiotomy should be read by all teachers and practitioners in view of the craze for this procedure, but even here there is no emphasis on the fact that fibrous tissue must always result when healing of a cut muscle takes place. The use of local anaesthesia for perineal repairs is described and advocated. The chapter on birth injuries of the child is good, as is the advice on cracked nipples. Strangely enough the use of methylated spirits locally for umbilical sepsis is not mentioned; it is most efficient if properly applied. The importance of the avoidance of infection in the premature infant is very properly stressed. This is a very good book.

<sup>1</sup> "Pathological Histology", by Robertson F. Ogilvie, M.D., F.R.C.P. (Edinburgh), with a foreword by A. Murray Drennan, M.D., F.R.C.P. (Edinburgh); Second Edition; 1943. Edinburgh: E. and S. Livingstone. 9" x 5", pp. 423, with 235 photomicrographs in colour. Price: 32s. 6d., postage 9d.

<sup>2</sup> "Textbook of Midwifery", by Wilfred Shaw, M.A., M.D., F.R.C.S., F.R.C.O.G.; 1943. London: J. and A. Churchill, Limited. 9" x 5", pp. 601, with 246 illustrations. Price: 21s.

## The Medical Journal of Australia

SATURDAY, DECEMBER 4, 1943.

*All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.*

*References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: Initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.*

*Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.*

### STARVATION IN EUROPE.

MOST Australians know that the people of Europe, particularly those in countries occupied by the enemy, are short of food. From time to time statements appear in the daily newspapers about starvation in Greece, Poland and other places. It is doubtful, however, whether Australians generally realize the full extent of the hopeless and helpless condition in which many of the European peoples find themselves, with hunger taking its daily toll of human lives and with emaciation and misery increasing on every hand. That Australians should have an accurate knowledge of European conditions is necessary—not for the mere fact of their knowing, because this would be as though they folded their hands and said, "How horrible", and did nothing more. The people of the Australian Commonwealth, with others as fortunately placed as themselves, will on the cessation of hostilities be faced with the hunger of Europe as an urgent and inescapable problem. They must therefore know exactly what the people of Europe are suffering and must understand how enormous and how difficult will be the task of keeping them alive and putting them on their feet again. We should really go beyond this and include in our survey countries nearer at hand such as China. Parts of China are even now as heavily afflicted as any of the territories of Europe occupied by the enemy. Whether Australia will have to do more for Eastern Asia than for Europe will depend on many factors which need not be discussed at the moment. The present need is that the position shall be made clear beyond any possible doubt. Geoffrey H. Bourne has published a book, realistic and grim, which should leave no doubt in the minds of readers.<sup>1</sup> It should

be widely known and read. As far as can be judged, Bourne's information has been gathered from reliable sources, and he approaches his subject from the standpoint of a scientist.

The policy of the German Government towards the peoples of occupied countries was stated by Dr. Ley, German Labour Front Minister, on January 31, 1940, in *Der Angriff* as follows: "A lower race needs less room, less clothing, less food and less culture than a higher race. The Germans cannot live in the same fashion as the Pole and the Jew . . . more bread, more clothes, more living room, more culture, more beauty—these our race must have or it dies." The Nazis have not been squeamish in giving effect to their policy. Before any reference is made to the present state of affairs in any one European country, some information must be given on the food situation in Europe before the war. The problem is complicated by the fact that before the war few countries had a sufficient standard of nutrition. With the exception of Germany and Denmark none could afford a fall in the consumption level of food. Bourne adds that the town dwellers in France, Netherlands and the "Protectorate" (Czechoslovakia) would have benefited by an increased food consumption and that in Belgium and many of the central European countries an increase was essential. (Some countries have not been included in the estimate of pre-war conditions because of lack of data.) When the statement is made that the people of many countries had food supplying sufficient calories, it is necessary to remember that estimations such as those made by Bourne are obtained by dividing the amount of food produced and the amount imported by the number of people in the country. An assumption is made (and Bourne is careful to state this) that everyone in a country will be able to purchase the same amount of food. This is, of course, far from the truth. The well-to-do may be able to buy sufficient food and even more than they need, if it is there to be bought, but persons of slender means will have to go short. These conditions at present are accentuated in every country by the existence of a black market.

The conditions existing in the occupied countries are described by Bourne at some length. He points out that, apart from purely military advantages, the Nazis wanted two things from the occupied countries—food and labour. On this basis their attitude to the feeding of the inhabitants of these countries fits, in his opinion, into a well-defined pattern. The treatment meted out depended on whether the country in question was before the war highly industrialized or agricultural. With this has to be considered the pre-war nutritional status that has already been mentioned. Attention is drawn to a complication in the comparison of the pre-war and present-day food positions. Before the war wastage (marketing, domestic and transport) was much higher than it is now; the result is that a food supply which normally provided 2,850 Calories may today be the equivalent of 3,000 pre-war Calories. In other words food to the value of 150 Calories per person per day used to be wasted. Bourne states that of approximately 200 millions of people living in occupied Europe, about half are peasants. They are living at a level which is not very much lower than the pre-war level, even though in some cases this was not very good. The exceptions to this statement are provided

<sup>1</sup> "Starvation in Europe", by Geoffrey H. Bourne, D.Sc.; 1943. London: George Allen and Unwin Limited. 7½" x 5", pp. 144, with 19 illustrations. Price: 5s. net.

by parts of Greece, Yugoslavia, Poland and parts of occupied Russia. The town dwellers are very much worse off than the peasants—the urban working class is the most severely affected. The worst group includes Greece, Croatia, the General Government of Poland and parts of occupied Russia, where both urban and rural populations are suffering from severe starvation. In the next group, comprising Serbia, Belgium and incorporated Poland, both town people and peasants are seriously deficient in food, but the peasants are a little better off than the town people. In the next group, including France and Norway, Norway is probably the worse off. In both these countries, but particularly in France, the peasant population has retained its pre-war consumption of food and the towns are seriously deficient. Some parts of Norway are bad even in rural areas. A slightly better group comprises the Netherlands, the Baltic States and the "Protectorate". In these most of the peasants are keeping up their food intake, and food consumption is a little better than in the preceding group, though it is still well below the amount and quality required to keep its people in good health. Denmark is the best fed country in the continent of Europe. Germany is only little worse off than Denmark and Italy is perhaps a little better off than Belgium. Finland, Bulgaria, Roumania and Hungary are assessed as a little better off than France. Bourne wrote early in 1943 (his preface bears the date March 1, 1943), and he points out that the rapid fall in the vitamin C content of potatoes during storage means that most of the population of Europe which depends on potatoes for its vitamin C supplies is close to the scurvy level in late winter and spring. Scurvy is appearing in increasing amounts in the occupied countries. Hunger oedema which has begun to appear in some places is mentioned; it is probably due to the combined effects of vitamin B<sub>1</sub> deficiency and protein deficiency. Pellagra is increasing, but so far only in countries where it occurred before the war. Greater reduction in the consumption of wheaten bread or rye bread may cause the condition to become more widespread. Some of the figures setting out the caloric value of food in the several countries are of great importance. Greece was a country which had never been self-sufficient. There are feeding centres at Athens and the Piraeus where something like half a million people are fed every day. The maximum quality of food which can be allowed to each person has an incredibly low Caloric value of 500. Any food which can be bought is ten times the normal price. It is small wonder that people are dying in the streets and that the morale of the people has fallen, as Bourne informs us that it has. Racial discrimination is shown everywhere. Jews in some places have rations which supply only 400 Calories a day. An example of racial discrimination comes from Lwow in Poland. Here Germans receive four and a half pounds of bread a week, Poles receive two and a quarter pounds and Jews a little over one pound. We read that in this region there have been many deaths from starvation and that people have been boiling down the bark of the trees and the skins of dead animals for food. In May, 1941, the population in a Jewish quarter outside Warsaw was being fed by communal kitchens. There were not so many deaths from actual starvation, but the exhaustion of the people was so extreme that they fell ready prey to illness and disease. In the part of Poland known as the "General Government"

the present evidence is that slow starvation is occurring. Conditions in the Warsaw Ghetto are "indescribably bad"; some of the illustrations in the book, including one of a communal grave full of the unclothed bodies of persons dead of starvation, are witnesses to this state of affairs. In the Netherlands the food situation is shown by the deterioration which took place in the caloric value of the official rations between August, 1940, and October, 1942; in this period the value fell from 2,450 Calories to 1,650 Calories. In Belgium and France the conditions are worse. In Belgium the rationed foods in 1942 provided an average of only 1,200 Calories per person per day. The authorities have had the greatest difficulty in securing deliveries of food from peasants who are able to feed themselves and supply the black markets in the towns. Cats and dogs are sold as food. A cat brings from fifteen to nineteen shillings (sterling) and a dog is sold at seven shillings and sixpence and more per pound. In contrast to the appalling conditions prevailing in the occupied parts of Europe, many more details of which might be given, were such a course necessary, the conditions in Germany may be summed up with the statement that "the German people and workers are getting sufficient food to keep them fit". The various foodstuffs in Germany are nearly all rationed and "elaborate grading of the community into physiological classes has therefore become necessary".

From the few references that have been made to Bourne's appraisal of the present nutritional state of the European peoples, the magnitude of the task ahead, and also its urgency, can be judged. The chief initial difficulty will apparently lie in the distribution of food to keep people alive until permanent plans can be made for food to be supplied to them and until they can do something towards supplying their own needs. As pointed out in a recent reference in these columns to the United Nations' Food Conference (see THE MEDICAL JOURNAL OF AUSTRALIA, June 26, 1943, page 581), this will be no simple matter. Even when the immediate urgent need is met and the starved people of the world are enabled to keep body and soul together, much more will remain to be done. Those who have access to it are advised to study a paper by H. D. Kruse, of New York, on the medical evaluation of nutritional status, published in *The Journal of the American Medical Association* of February 20 and 27, 1943, at pages 584 and 669. Krause writes in a most informative way on acute and chronic forms of malnutrition and his views can usefully be applied to the post-war food problem. The response to proper feeding in acute malnutrition may be more apparent than real, and is more rapid than in the more chronic forms. It is clear that when acute shortage of food is suffered by persons who have for years been subjected to inadequate food supplies and whose tissues have therefore been deprived for a long period of essential requirements, they will recover less quickly and with greater difficulty from an acute shortage than well-nourished persons subjected to a similar acute deprivation. After the war the duty of well-provisioned nations to their starving neighbours will not be met if only the immediate needs are supplied and death from starvation is prevented. Some initial steps at least will have to be made for the establishment of a method by which the chronic malnutrition of European and other countries can be relieved and prevented from recurring. This will not be done in a day. The best intellects among

the more favourably placed nations will have to be brought to this work—men of practical human experience and driving force with the necessary academic knowledge. They will need the cooperation and the forbearance of their own compatriots. Sacrifices will be needed for some time to come and Australians should understand that they will be among those called on to make them.

## Current Comment.

### ALTITUDE AND VITAMIN C.

THE current lists of the vitamin contents of various foodstuffs do not display a satisfactory consistency. One reason for this is that there is constant improvement in the methods for quantitative determination and in consequence successive correction of the values previously reported. On the whole the figures supplied give fairly well the relative standing of various foods with respect to their vitamin components; thus black currant, parsley, rose hip, pickled walnut and lucerne remain at the top of the list for vitamin C. Still there has arisen the disturbing consideration that the vitamins in any foodstuff may vary according to soil, aspect, climate and season. It has been known for some time that tomatoes forced in winter have a much lower vitamin C content than those cultivated in summer. Bleaching as in celery or in the hearts of cabbage and lettuce lowers the vitamin A percentage, but this is an artificial condition imposed on the plant. In the eating of fruit we are aware of wide differences in appearance, texture and taste according to locality, season and variety, and it is highly likely that there may be corresponding dissimilarities in the amounts of the various vitamins present.

The results of a most interesting research conducted by a Russian, V. D. Kostenko, have been published this year by the Soviet Academy of Science.<sup>1</sup> Both cultivated and wild plants were investigated in the Pamir plateau from elevations rising to 3,860 metres. It was found beyond any possibility of doubt that there is a progressive increase of vitamin C from lower to higher altitudes. Some of the figures, such as 4,000 milligrammes *per centum* for wild rose hips, are truly remarkable. Beyond a certain practical importance in countries which can boast fertile land at the altitudes investigated this research has a theoretical interest of a high order. As Kostenko points out, the rise in vitamin C content is probably associated with the increasing difficulties of photosynthesis arising, we may suppose, from the fall in temperature and the diminution in the mass of available carbon dioxide. Just what the vitamins are doing in the plants where they are developed is an intriguing question, and a study of this problem could well help in giving information concerning their functions in the human consumer. Certainly the proved ability of vitamin C to act as a carrier of hydrogen in the respiratory enzyme system can explain a lot in both plant and animal, and is more convincing from the standpoint of comparative physiology than the alleged function of maintaining the intercellular ground substance in capillary walls, connective tissues, bone and dentine.

### BLOOD SUGAR IN THE CHICK EMBRYO.

THE maintenance of a standard sugar percentage in the blood is one of those many examples of constancy in the internal media which excite the admiration of the

physiologist. The content of sugar in the plasma is kept at a fixed level by the cooperation of several processes—absorption, storage, mobilization, utilization, and when necessary excretion. Neural and humoral mechanisms are at work in preserving this uniformity and much has still to be learned about the agencies which exert this guidance. In the case of the mammalian embryo the regulating mechanisms can easily be supplied by the adult mother operating through the placenta, but in the developing chick no such control is present. It came therefore as a surprise to learn that two Russian investigators, L. G. Leibson and R. S. Leibson, had discovered a remarkable invariability in the blood sugar of chick embryos (white leghorn) of similar incubation age.<sup>2</sup> Sufficient blood for analysis can be obtained from the beginning of the eighth day of incubation, and it was found that the blood sugar level of chicks of the same incubation age showed a singular constancy. From the seventh day on there is a daily rise, more pronounced in the seventh to tenth day period; this increase slows down in rate, but from the thirteenth day the rise of blood sugar becomes again perceptible. The actual figures are 115 milligrammes *per centum* glucose, when seven days old, rising to 161 milligrammes *per centum* when twenty days old. For five weeks after hatching there is a fixed sugar level; then there is a slight decline until the value for the adult bird is reached and this stays constant. These results cannot fail to excite interest, as in the young chick we cannot postulate any neural or glandular mechanisms except the most primitive. The only constancy of body which the undeveloped chick gains from mother or foster mother is thermostasis; but apparently, small and undeveloped though the organs may be, they are still capable of carrying out a delicate adjustment which we had imagined was the prerogative of post-embryonic life.

### THE TRANSMISSIBILITY OF MALARIA BY PLASMA TRANSFUSIONS.

WRITING from the Blood Research Division of the United States Naval Medical School, E. L. Lozner and L. R. Newhouse report a study on the transmissibility of malaria by plasma transfusions.<sup>3</sup> The conditions under which transfusions are often given nowadays in the United States Army and Navy made the study necessary. They base their findings on thirty-five administrations of plasma in doses varying from 60 to 270 millilitres prepared from patients with active malaria and preserved in different ways for varying lengths of time. In no instance was an immediate untoward reaction observed. In twenty administrations of plasma that had been frozen and three of plasma that had been dried no transmissions of malaria were observed. In two administrations of plasma that had been preserved in the liquid state for one day before injection there were one definite and one probable transmission. Question was raised in the latter instance only because the patient had had malaria five years previously. In five administrations of plasma which had been preserved in the liquid state one week before injection no transmissions were observed, except in one instance, in which parasites were found on one occasion; the patient had no symptoms and he had had malaria ten years previously. In five administrations of plasma that had been preserved in the liquid state for two weeks no transmissions were observed. Lozner and Newhouse conclude that the likelihood of the transmission of malaria by plasma is "practically non-existent", regardless of the type of preservation used. Plasma from malarial persons will generally be avoided, but this conclusion is reassuring if it sometimes has to be used. Filtration according to Whithby will make it absolutely safe, but this may be difficult under war conditions.

<sup>1</sup> V. D. Kostenko: "Content of Vitamin C in Cultivated Plants Growing in High Regions of Pamir", *Comptes rendus (Doklady) de l'Academie des sciences de l'URSS*, Volume XXXVIII, 1943, page 42.

<sup>2</sup> L. G. Leibson and R. S. Leibson: "The Blood Sugar Content in the Chick Embryo and Young Chicks", *Bulletin de l'Academie des sciences, serie biologique*, Number 2, page 93, Moscow, 1943.

<sup>3</sup> The American Journal of the Medical Sciences, August, 1943.

## Abstracts from Medical Literature.

### DERMATOLOGY.

#### Fungous infections of the Feet.

H. E. HAILEY, Medical Corps, United States Naval Reserve (*Archives of Dermatology and Syphilology*, January, 1943), has tried to determine the value of a camphor-phenol mixture as a cure of ringworm infections of the feet. Francis used a combination of equal parts of camphor and phenol with success in the treatment of "athlete's foot", the term "athlete's foot" being interpreted as referring to any type of fungous infection of the feet. This preparation was later brought to the attention of the public in a popular monthly magazine. The author compared the fungicidal effect of equal parts of camphor and phenol with that of an alcoholic solution of 2% iodine, 5% benzoic acid and 3% salicylic acid. Eighty-five naval aviation students suffering from fungous infections of the feet were selected at random. They were grouped according to the clinical appearance of the lesions at the time of the initial examination. Of these, 62% showed only a scaling and peeling about the toes, 18% had fissures and maceration between the toes and 21% had varying degrees of vesiculation and erythema. The last two groups complained of discomfort. Before the camphor-phenol mixture was used it was applied to the flexor surfaces of the forearms of ten subjects daily for one week. There were no untoward effects. In the groups the camphor-phenol mixture was applied without regard to clinical differences to the right foot and toes, while the alcohol solution was painted on the left foot in a like manner. Both medicaments brought about exfoliation between the toes in three days. For the group of 52 with peeling the preparations were equally effective, and no untoward reactions were noted from the camphor-phenol mixture, but after cessation of treatment for one week cultures were obtained from material from feet under each form of treatment. In the group of 15 (18%) with fissures and maceration there was short-lived relief, but after three days' treatment it became apparent that this mixture did not promote healing. In two cases the fissures became deeper and more painful. In the treatment of the 18 (21%) with vesiculation, the camphor-phenol mixture offered no benefits and some harm. The alcoholic solution is also contraindicated in the groups with fissures and macerations and also the group with vesiculation. The camphor-phenol mixture proved to be a primary irritant. The author concluded that the camphor-phenol mixture is not a cure for fungous infection of the feet. It is not beneficial and may be harmful in the vesicular type. It may retard the healing of fissures. It should not be used in the groins and perineal regions.

#### Cancer en Cuirasse.

LOUIS SAVATARD (*The British Journal of Dermatology and Syphilis*, February, 1943) states that cancer en cuirasse was

the name given by Velpeau in 1838 to the advanced stage of cancerous invasion of the skin (*carcinoma lenticulare*) of the chest wall from an underlying cancer of the breast or from "recurrence" in or about the scar in cases in which the breast has been removed. The earliest clinical evidence of *carcinoma lenticulare* is usually that of small, shot-sized, flattish papules or nodules which enlarge to the size of a pea, bean or even fibret; most of them project more or less above the surface, though they may be subcutaneous. They are generally seated on a red or bluish smooth glistening surface which may be traversed by dilated blood vessels. The nodules, at first discrete, later coalesce to form a leathery indurated sheet, with a well-defined edge, encasing the thorax and even extending over the entire surface of the trunk, interfering with respiration like scleroderma. More rarely, however, in the pre-operative cases, the first manifestation may be only a yellowish-red marbling of the skin with but slight induration, the significance of which may easily be missed. The author describes the condition in a patient of his own. The history was that about two months previously the patient had noticed discolouration of the left breast about the nipple when in her bath; the discolouration cleared, but she found a lump in the breast and saw some red spots in the region of the nipple; there were no itching of the skin and no pain in the breast. On the inner and lower quadrant of the left breast there was a striking telangiectatic condition of the skin, as if radiating from a central focus: red streaks, red patches and small red nodules, some of the latter capped with scales and others presenting a vesicular appearance. The nipple, from which there was no discharge, was depressed, though not retracted, and could be easily invaginated into what felt to be a large cyst cavity. The telangiectatic streaks and patches were not raised above the surface of the skin, which was slightly indurated and yet could be picked into folds except in the centre of the affected area, where it was attached to a hard lump beneath, in the substance of the gland. The axillary lymph nodes were not palpable. A radical mastectomy was done. A spheroidal-celled carcinoma was found in the lower inner quadrant of the breast, and by means of the whole breast sections the cancerous process could be traced spreading towards the surface of the skin in all directions. They reached and in parts invaded the epidermis at the sites of the nodules, but nowhere produced ulceration of the skin. At the periphery, where their permeation of dilated capillaries was best seen, the overlying epidermis was normal.

#### Contact Dermatitis from Olive Oil.

R. L. SUTTON, JUNIOR (*The Journal of the American Medical Association*, May 1, 1943), states that olive oil is generally believed to be completely bland on topical application. The author has observed trouble resulting from its use. He states that when it is applied to "dry scalp" (seborrhoeic dermatitis of the scalp) the dandruff is regularly made worse. Olive oil is not different from any other greasy substance when applied to superficial vesiculating auto-inoculable, staphylococcal dermatitis,

generally known as "infectious eczematoid dermatitis". In this condition any unguent smears the parasites about, prevents their drying and promotes spread of the disease. In the case which the author reports the dermatitis was present for more than ten years and its maintenance was evidently due solely to olive oil, because when its use was forbidden complete cure resulted. The cure of contact dermatitis is a matter of what is kept off the skin, not of what is put on it. It is an error to try to make the skin heal when the purpose should be simply to allow the skin to heal.

#### Acne Conglobata and Perianal Pyoderma (Hidradenitis Suppurativa).

R. L. SUTTON, JUNIOR, AND M. M. MARKS (*The Journal of the American Medical Association*, April 24, 1943) state that *acne conglobata* is a chronic inflammatory disease of the skin characterized by the presence of the constituents of *acne vulgaris*, such as comedones, papules and pustules, and in addition large, elevated, fluctuating plaques which are dusky blue, and frequently form cutaneous or subcutaneous abscesses and oil cysts; these perforate and form discharging sinuses, healing slowly and often leaving keloidal or so-called bridge scars (*Brückennarben*) of Lang. The lesions closely resemble tubercular dermatitis of the colligative type (scrofuloderma). The chronicity of this rare form of severe acne and its rebelliousness to treatment are well known to dermatologists. Proctologists see cases such as those described by Highman in which the perineum and buttocks are riddled with abscesses. One of the authors has in the past seven years undertaken to manage the disease severely affecting the buttocks of ten Negro women aged twenty-five to fifty. Each suffered from hypoglandular defects as evidenced by obesity and seborrhoea as well as ordinary acne affecting other parts of the body. Their "perianal pyoderma" was treated with surgery, heliotherapy and vaccines without success. Post-operative healing was exceedingly slow and ended with keloid scars. Relationship of this to *hidradenitis suppurativa*, a disease which affects mainly the axilla as a rule, was recognized by Jackman. The acneic nature of one type of hidradenitis, the type not due simply to staphylococcal parasitism of axillary sweat glands, was postulated by one of the authors. The groin location of lesions of *hidradenitis suppurativa* was depicted by Brunsting in a case which the authors would class with the acneic type and which resembled their own case. The authors believe such cases not to be of pyogenic bacterial aetiology. They consider them and perianal pyoderma and *acne conglobata* all to be variants of acne.

#### Vitamin B<sub>6</sub> (Pyridoxine) in Dermatology.

C. S. WRIGHT, M. H. SÁNLIZ AND H. BROWN (*Archives of Dermatology and Syphilology*, May, 1943) state that little is known concerning the exact role of vitamin B<sub>6</sub> (pyridoxine), which is only a small branch on the ever-growing vitamin B complex tree, but

the isolation of vitamin  $B_6$  was announced only in 1938 by Keresztesy and Stevens. The authors' interest was first stimulated by the report of Spies, Bean and Ashe on four patients suffering from pellagra who had failed to recover entirely on a selected diet with supplements of thiamin, riboflavin and nicotinic acid, but who responded favourably to a single 50 milligramme dose of vitamin  $B_6$ . Therapy with pyridoxine was immediately given to a patient with pellagra at Temple University Hospital in whom no response had followed the usual therapeutic procedures, and improvement was almost immediate in cutaneous lesions, which were the predominant manifestations. The patients studied by the authors included persons suffering from seborrhoeic dermatitis, atopic eczema with seborrhoeic features and eczematous eruptions of unknown origin. Patients were permitted to continue their previous therapy, but in most instances no other treatment was given except injections of pyridoxine in 25 to 100 milligramme doses. Clinically, the administration of vitamin  $B_6$  resulted in definite improvement and occasionally in the complete disappearance of seborrhoeic or seborrhoid eruptions when other standard measures failed. The authors' findings suggest that if vitamin  $B$  complex therapy is to be of definite value in the treatment of dermatoses of the seborrhoeic or eczematous type, the pyridoxine content must be adequate.

#### Dermatitis Herpetiformis.

J. H. SWARTZ AND W. F. LEVINE (*Archives of Dermatology and Syphilology*, May, 1943) present a paper to evaluate the treatment of *dermatitis herpetiformis* with various sulphonamide compounds and to report studies which may have some bearing on the pathogenesis of the disease. Intradermal tests with various bacterial vaccines were carried out on twelve patients suffering from *dermatitis herpetiformis*. In five patients vesicular reactions were obtained following injections of *Bacterium coli* vaccines. In the five patients vesicular reactions were obtained. In one of the five a vesicular reaction followed also injections of *staphylococcus* vaccines; in another, administration of *streptococcus* vaccines. The vesicular response is probably based on bacterial allergy, but the allergy is not restricted to one particular bacterium. Chemical studies of the blood were carried out in fifteen patients. All values were within the normal range, with the exception of the sodium content of the serum, which was found to be slightly elevated in four of eleven patients. During the past two and a half years thirteen patients with *dermatitis herpetiformis* have been treated with various sulphanilamide compounds at the dermatological clinic of the Massachusetts General Hospital. Sulphapyridine was found to be effective in controlling the eruption. Its effect was, however, only temporary, and in order to maintain the improvement the administration had to be continued. The advisability of continued treatment over a long period is yet to be determined. Sulphanilamide was found to be less effective than sulphapyridine, even when larger doses were given. Sulphathiazole proved of little value.

Sulphaguanidine and sulphadiazine did not have any influence on the course of the disease. In all, thirteen patients were followed for a period of ten months or longer. Two patients were under continuous treatment for more than two years. Two patients had a toxic eruption from sulphanilamide. Nausea was caused in one patient by sulphanilamide and in another by sulphapyridine. No damage to the haemopoietic system was observed in any instance.

#### UROLOGY.

##### Radical Operation for Prostatic Carcinoma.

J. A. C. COLSTON (*The Journal of the American Medical Association*, July 17, 1943) states that the operation of total prostatectomy by the perineal route is suitable only for early cases of prostatic carcinoma, when the disease has not spread beyond the prostatic capsule. The proportion of such cases among all carcinomas of the prostate is only about 5%. Nevertheless, in a five-year period in the Department of Urology, New York Hospital, 73 patients were subjected to this operation, the number of different operations being four. The hospital mortality in the whole series of 73 cases was 5%. Of 43 patients for whom the prognosis was good, 41 are living, at periods varying from three months to five years after operation; of 26 for whom the prognosis was poor, eight are living and well at similarly varying intervals. The operation is the radical procedure of Hugh Young, and entails removal of the whole prostate with its capsule, the seminal vesicles, the contained urethra down to a point just short of the sphincter of the membranous urethra, and a cuff of vesical wall surrounding the internal meatus. Continence of urine should be obtained if the sutures joining the floor of the bladder to the urethral stump do not encircle portions of the external sphincter, but instead are passed right through the perineum and tied on the surface.

##### Rhabdomyosarcoma of the Lower Part of the Urinary Tract.

R. W. HUNT (*New York State Journal of Medicine*, March, 1943) states that rhabdomyosarcomata of the bladder and prostate are very rare. Only twenty-six cases have been reported, eight of the bladder and eighteen of the prostate. The author reports two additional cases. The normal striated muscle from which these fatal tumours arise lies on the anterior surface of the prostate, and fibres have also been demonstrated in the region of the internal sphincter. Examination of a biopsy specimen, obtained at cystotomy to relieve obstruction, confirms the diagnosis. The prognosis is bad because (a) these tumours arise in places from which radical removal is technically impossible, (b) the growths metastasize early and before diagnosis is made, and (c) early diagnosis is difficult and not often made.

##### Problems of Prostatectomy.

H. P. WINSBURY WHITE (*British Journal of Urology*, March, 1943) states that in Britain, under the stress of war conditions, operations are avoided

by patients so much that, so far as prostatic obstruction is concerned, cases of great surgical risk are met more often than formerly. The consequence is that two-stage prostatectomy is indicated quite often in the uncertain conditions of these times. To reduce infection before operation, the surgeon is tempted to use sulphonamides, but, when renal efficiency is impaired, they are to be used with the greatest caution. In catheter drainage, rubber is preferable to gum-elastic, and the smaller size to the larger. Any dilatation of the urethra causes drainage from infected ducts and acini of the prostatic and urethral glands, and such infection is far from uncommon in cases of prostatic hypertrophy. It is always better, when any instrument is passed in such cases, to leave a catheter tied in; there is then less risk of pyrexial reaction, since drainage is provided alongside a small indwelling catheter. The author recognizes two types of chronic retention: (a) a type characterized by drowsiness, dry tongue, relative oliguria, but with the blood urea only slightly increased; and (b) a type with no drowsiness, with moist tongue, slight oliguria only, but definite increase in the blood urea content. The prognosis is grave in both types and suprapubic cystotomy is risky. Controlled decompression by indwelling catheter is the safest method. It is pointed out that the prognosis of prostatectomy may be bad on account of infection, even though renal efficiency as revealed by tests is good. Primary haemorrhage, that is, during and immediately after prostatic enucleation, is a great danger in the presence of congested adenoma, and the only way to reduce this risk is to perform a two-stage operation; the preliminary suprapubic drainage gets rid of excessive congestion.

##### Diagnosis and Treatment of Early Prostatic Carcinoma.

R. B. HENLINE (*The Journal of the American Medical Association*, July 17, 1943) states that detailed microscopic studies at autopsy show that prostatic carcinoma actually occurs in one out of every seven men past fifty years of age. Unfortunately there are no symptoms of very early prostatic carcinoma. All males over fifty should undergo routine medical examinations at intervals, and the study should include careful rectal examination. Suspicion should be aroused by an abnormality anywhere on the rectal surface of the gland. The surest method of securing tissue from the suspected area for biopsy is by open perineal approach by the simplified method suggested by Elmer Belt. This is a modification of the usual technique of deep perineal section employed by Hugh Young. The author condemns the various methods of punch and needle biopsy, since a negative result may still leave the surgeon in doubt. The section of tissue taken by open biopsy is frozen and examined immediately. If the suspicion of carcinoma is confirmed, complete perineal prostatectomy with seminal vesiculectomy is carried out at the same sitting. If carcinoma is not found, the little wound is allowed to heal and the patient can leave hospital in a few days. Chronic fibrotic inflammation is the lesion with which carcinoma is most easily confused.

## British Medical Association News.

### SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held on August 19, 1943, at Lewisham Hospital, Lewisham. The meeting took the form of a number of clinical demonstrations by members of the honorary medical staff of the hospital.

#### Neurosurgical Exhibit.

DR. W. LISTER REID discussed a number of cases of neurological interest and showed films. The first case was that of a boy, aged ten years, who had had a third ventricle (paraphysial) cyst. Ventriculography was performed, and the resulting X-ray film revealed a uniform dilatation of the lateral ventricles; but the air stopped at the level of the foramen of Monro. No air entered the third ventricle. The cyst was approached through the frontal lobe and removed, and the patient made a complete recovery.

Dr. Reid's second case was that of a boy, aged five years, who had had a large angioma in the suprasellar region projecting into the anterior horn of the right lateral ventricle. Pneumographic studies revealed considerable dilatation of both lateral ventricles. The right anterior horn was displaced upwards and backwards. The tumour was approached through the right frontal lobe, and was found to be the size of a small orange; it was situated above the region of the pituitary and projected into the right lateral ventricle. It was completely removed by blunt dissection. The child made a complete recovery, except for weakness of both legs. This had decreased somewhat since the tumour was removed, but at the time of the meeting he was still unable to walk.

The third case discussed by Dr. Reid was that of a boy, aged twelve years, who had had a large left hemispherical astrocytoma projecting medially through the lateral ventricle and almost completely obliterating the third ventricle. X-ray films revealed dilatation of the left lateral ventricle, with separation of the body upwards and of the temporal horn downwards. Air could be seen in the anterior third of the third ventricle, but none entered the posterior two-thirds. The tumour was approached through the left occipital lobe and through the confluence of the left lateral ventricle. Only about two-thirds of the tumour was removed, as it was too large for its complete removal to be contemplated. Dr. Reid said that considerable physical improvement followed the operation, in that the boy's ataxia disappeared; but no improvement in his mental condition occurred, except that he seemed to have lost his precocious sexual tendency, which was evident prior to the operation.

Finally Dr. Reid showed X-ray films from cases of brain abscess, Paget's disease of the skull, acute osteomyelitis of the skull and subdural gumma with bone involvement.

#### Paralysis of the Left External Rectus Muscle.

DR. A. L. LANCE showed a boy, aged five and a half years, whose left eye had been convergent since he was three months old. The external rectus muscle was paralysed, and no outward movement beyond the mid-line was possible. In January, 1943, Dr. Lance transplanted the insertion of the outer halves of the superior and inferior rectus muscles into the insertion of the external rectus muscle, which was advanced over this. In May the convergence was corrected by operation on the right eye; tenotomy of the internal rectus muscle was performed, with tucking of the external rectus muscle. Dr. Lance said that the patient's eyes were now straight, and he had full movement to the left with both eyes.

#### THE QUEENSLAND MEDICAL WAR BENEFIT FUND, 1943.

AT the request of the Honorary Secretary of the Queensland Branch of the British Medical Association, we publish hereunder a list of the signatories and donors in connexion with the Queensland Medical War Benefit Fund, 1943.

#### List of Signatories and Donors.

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## Medical Societies.

#### THE MEDICAL SCIENCES CLUB OF SOUTH AUSTRALIA.

A MEETING of the Medical Sciences Club of South Australia was held on October 1, 1943, at the Institute of Medical and Veterinary Science, Adelaide.

#### Vitamin A and the Nutrition of Sheep.

MR. A. W. PEIRCE read a paper entitled "Observations on Vitamin A in the Nutrition of Sheep". He began by briefly discussing the problem of vitamin A for sheep maintained under grazing conditions in Australia, and drew the conclusion that the development of deficiency conditions depended on the extent of the reserves of vitamin A in the livers of the animals at the beginning of the period of low intake, on the period when the animals were subsisting on dry food, and on the duration of that period. Mr. Peirce then gave a short account of the investigations being carried out and the results that had been obtained.

The first section of the paper dealt with a study of the variation in the levels of carotene and vitamin A in the blood of breeding ewes on a pasture having a dry period of about six months in each year. The outstanding finding was the constancy of the level of vitamin A in the blood throughout the year. The concentration varied only between 71 and 94 international units per 100 millilitres of plasma, and the mean value was 80 units. The concentration of carotene, however, varied with the intake; but that was of minor importance in the sheep, as at the most it amounted only to about 25% of the total vitamin A potency of the blood. The variation was from 6.47 of carotene per 100 millilitres of blood at the end of autumn (March or April) to 16.47 in late winter or early spring (August or September). The equivalent concentrations expressed in terms of vitamin A were 11 and 27 international units per 100 millilitres of plasma.

The second section of Mr. Peirce's paper was concerned with the effects of a prolonged period on a diet poor in carotene. Mr. Peirce said that it had been found that, whereas the vitamin A content of the liver began to decline

almost immediately, and had fallen to about 20% of its original figure by the end of five months, the vitamin A concentration of the blood did not appreciably fall during that period. Thereafter, however, the concentration of vitamin A in the blood as well as that in the liver declined, and at the end of eighteen months concentrations of 2% and 20% of the original values were reached in the liver and the blood respectively. Night blindness was observed in one animal after five months, and thereafter the number of animals affected and the severity of the symptoms progressively increased. Supplementation of the feed with carotene in the form of dehydrated lucerne leaf was begun at the end of nine months. When the intake was increased to 50% of carotene per kilogram of live weight the level of vitamin A in the blood rose to almost the normal figure. When the intake was 25%, the blood level remained stationary, and no storage had taken place in the liver of the one animal killed. In the group of animals which received no supplementary feeding, the blood level declined, and all the animals displayed signs of muscular incoordination just before death. This condition was found to be associated with a degenerative state of the spinal cord.

The third section of Mr. Pearce's paper consisted of a study of the levels of carotene and vitamin A in the blood and livers of lambs of various ages. The carotene in the blood rose from a low level at birth to almost three times as much at two months. The vitamin A concentration in the blood of newborn lambs was about one-third that of sheep; but after suckling on the first day it rose to 150% of the adult value. Thereafter it remained at about the normal adult level. The vitamin A level in the livers of newborn lambs was very low, and rose progressively to ten times that level in three months.

## Medical Practice.

### WARTIME PRACTICE IN TAMWORTH, NEW SOUTH WALES.

The following statement on wartime practice in Tamworth, New South Wales, has been forwarded for publication by Dr. Keith J. B. Davis on behalf of the practitioners of that town.

This description of the development of the scheme of wartime medical practice in Tamworth has been written because the Tamworth practitioners feel that it possesses a possible solution of the problem of remuneration facing the profession in the development of a scheme for post-war medical service in Australia.

Shortly after the commencement of the war when some of the nine general practitioners in Tamworth indicated that they were desirous of joining the services on full-time duty, several having served for short periods in militia camps, it was decided that some scheme should be evolved so that the men going to the forces should not be called upon to suffer any financial sacrifice. The achievement of this object has passed through three phases.

1. *The Pool.*—This scheme came into operation in October, 1940, when two of our practitioners entered the army. In order to arrange the contribution of the active members, that is, those remaining in practice in Tamworth, to the pool which was to subsidize the absent practitioners, that is, those on military duty, all nine practitioners submitted to a committee of two doctors and an accountant their average gross takings for the preceding three years. As two practitioners had not practised here for three years an arbitrary figure was agreed upon in their case by consultation between them and the committee. It was then decided what was each man's percentage of the total town income and that the absentees would be credited with a percentage of professional town income, their army pay and allowances corresponding to the percentage of the total town income which they had earned prior to the introduction of the "pool". A sum of 15% of this amount was deducted to reimburse the active practitioners for the expenses incurred in earning the income for the absentees. Thus the absentee receives his army pay plus an amount from the pool which brought his income to 85% of his "pre-pool" gross income. The balance of town income was then distributed among the active practitioners in proportion to their gross earnings.

The method of calculation was taken from the formula in the appendix of the pamphlet issued by the New South Wales Branch of the British Medical Association on "Emergency War Organization" in 1940.

In May, 1941, a third practitioner joined the forces, and although this naturally increased the burden, the pool was still successfully operated. In January, 1942, the fourth practitioner joined the services, and then the pool became too heavy; three of the busiest practitioners had now left the town.

2. *The Equal Partnership.*—In February, 1942, it was decided to form a partnership of all the general practitioners of the town. All partners were to receive equal shares. The expenses were paid by the partnership; capital expenditure was paid for and was to be recouped on sale or dissolution by the practitioner incurring the expense. The absentee partners contributed their military pay *et cetera* and were allowed certain expenses. The active partners banked all moneys received into the common banking account. Each month a meeting of partners was held, and after cheques had been paid to recoup practitioners of expenditure incurred in the running of their practice the balance was divided into nine equal amounts.

This partnership, which was governed by a legal agreement signed by the nine practitioners, persisted until March, 1943, when some of the absentees protested that they considered that they were in receipt of more money than they felt was due to them. Accordingly, after a series of meetings it was decided to draw up an amending agreement which was initiated in April, 1943.

3. *The Unequal Partnership.*—The percentages of the absentees were adjusted so that instead of receiving 1s. 9d. or 11 1/2%, they now receive shares varying slightly above and below this percentage which equalled their pre-war income. Their total proportion of the whole income, town and military, is 37%. This leaves 63%, which is divided among the active practitioners in proportion to their net income (gross income minus expenses). It is agreed that each man must receive a minimum of 9%, which is paid monthly. The surplus is distributed at quarterly periods subject to revision at the end of the year.

The basic "salary" of 9% is a protection for the active practitioner; should he become sick, which is more probable in these strenuous days, he is assured a decent living. The scheme also allows the popular or skilful man to reap the full benefit of his extra work. It keeps alive the spirit of competition while avoiding its worse aspects.

When the war is completed and our men return to practice, with a slight adjustment of the "basic salary" percentage of 9% they will be assured a reasonable income while rehabilitating themselves.

During recent months the question of complete group practice has been considered and a resolution has been agreed upon urging the formation of a group to embrace all practitioners, including specialists. It is considered that the group will be quartered in one building and have facilities and staff in common and will encourage the development of those special tendencies for which aptitude and desire will form the basis.

Finally we in Tamworth feel that our cooperative effort has enabled the town to contribute four men, that is, 45% of our general practitioners, to the war effort, who for their part have been able to do their duty free from the fear that their families would suffer financial embarrassment. This, however, is not the only credit item derived from the venture; the cooperative effort has raised the standard of the medical practice. Mutual assistance freely sought and given has improved our work and made it more pleasant and engendered a good spirit of fellowship, which alone has more than compensated for any financial sacrifice and has guided into all financial discussions and adjustments a high spirit of understanding and goodwill.

## Medical History.

### PIONEER MEDICAL MEN IN SOUTH AUSTRALIA.

More than two years ago, on July 10, 1941, Professor J. B. Cleland gave an address to the Pioneers' Association of South Australia on pioneer medical men of that province. This was later published.<sup>1</sup>

As members of the medical profession interested in Australian medical history may be unaware of this publication, it seems advisable to call attention to it in these

<sup>1</sup> "Pioneer Medical Men in S.A.": An address by Professor J. B. Cleland, M.D. Published by the Pioneers' Association of South Australia, Adelaide. Undated.

columns. Occasional publications issued by associations are apt to be lost sight of unless reference to them appears in journals which are indexed.

In South Australia, the term "pioneer" is applied to those colonists who arrived in the province (as it then was) before the close of the year 1845. In the address short references are first made to those medical men—Robert Brown, for instance, botanist on Flinders's voyage in the *Investigator*, and Captain Collet Barker, who was killed by natives at the Murray mouth in 1831—who had visited South Australian shores before colonization began.

The province was established in December, 1836, but some vessels had arrived in South Australian waters earlier in that year.

In the five years 1836 to 1840, 103 vessels arrived in South Australia from Europe bringing 12,370 immigrants. Eighty-six medical men came on these ships, of whom 29 settled, for a while at least, in South Australia. The following table, which was not published with the address, gives some of the particulars.

Year.	Number of Vessels Arriving from Europe.	Number of Immigrants.	Medical Men Arriving.	Medical Men Residing.
1836	9	646	7	3
1837	12	977	7	2
1838	23	3,143	14	4
1839	35	4,886	31	11
1840	24	2,748	(1 returned) 28	9
Total, five years ..	103	12,370	86 individuals	29 (that is 1 to 426 immigrants)

This means that there was one medical man to each 426 immigrants, or if officials *et cetera* be added, one to less than 500 individuals in the province. As one medical man to 1,000 inhabitants is normally considered sufficient, it will be seen that resident medical men were in excess of requirements, so their turning to other avenues of occupation can readily be understood.

The first medical pioneer was John Woodforde, surgeon to the Survey Department, who arrived in the *Rapid* on August 20, 1836, with Colonel Light, Edward Wright, the second pioneer, came in the *Cygnet* on September 11, 1836, and C. G. Everard in the *Africaine* on November 2, Lewis Jones, surgeon of the *Tam O'Shanter*, arriving in December, and James Jackson, surgeon of His Majesty's ship *Buffalo* and F. P. Pascoe, his assistant, arriving with Governor Hindmarsh on December 24, 1836, did not apparently take up his residence in the province.

Though the majority of those medical men who settled in South Australia practised their profession, several did not do so, except incidentally, but became engaged in other pursuits. Even those who did practise sometimes combined other work with that of their profession or acquired pastoral properties in the country.

Two, Dr. Moorhouse and Dr. Wyatt, became protectors of the aborigines. Dr. Samuel Myles, who arrived as surgeon of the *Sir Charles Forbes* on June 7, 1839, took up property at Morphett Vale, which he worked with his two sons, and apparently never registered—he held for a while the office of postmaster at that place. Dr. J. B. Harvey at Port Lincoln carried out many other duties there, such as those of collector of customs, postmaster and port officer, and also contributed materially by his collections and writings to our knowledge of the natural history of that district. Dr. C. G. Everard, surgeon on the *Africaine*, who arrived on November 2, 1836, never registered, but chiefly devoted himself to the management of his estate. Dr. Slater, who was also on board the *Africaine*, and, as he was not the ship's surgeon, evidently intended to settle, was lost on Kangaroo Island and perished with his companion Osborne when they landed at what is now Harvey's Return, intending to walk across to Kingcote. Dr. John Harris Browne, who arrived in March, 1840, to join his elder brother, William James, accompanied Captain Sturt on his memorable expedition of 1844-1845 into the interior of Australia and probably was instrumental in saving his leader's life. Dr. Edward Davy may have resided in Adelaide before the end of 1845. He was one of the pioneers in telegraphy and invented the "relay". He edited the *Adelaide Examiner*, and from 1848

to 1851 managed copper smelting works at Yatala. In 1852 he took charge of the government assay office.

Dr. Alexander Inlay traversed new country in his exploration directly eastwards to the Murray in 1838. Dr. Kent brought out machinery for making bricks. Dr. Charles Knight became a distinguished public servant in New Zealand. Dr. C. G. Everard, Dr. Rankine and Dr. Davies became members of the Legislative Council and Dr. Wark, Dr. J. Harris Browne and Dr. Moorhouse members of the Legislative Assembly. Dr. Moorhouse carried out statistical inquiries of importance. Dr. Wyatt was a philanthropist and left the balance of his estate for the benefit of elderly gentlefolk in reduced circumstances. Dr. McHenry's estate in Adelaide was left by his son to the lessees or holders of the leases, the wording leading to a famous court case. Dr. Leigh and Dr. Jamieson wrote books giving excellent accounts of South Australia in the early days. Dr. Kelly was a vigneron and wrote two books on the cultivation of the vine and wine-making. Dr. T. Y. Cotter and Dr. Davey edited newspapers.

The principal part of the address is taken up with accounts, as far as information is available, of the ninety-four pioneer medical men of whom we have knowledge. In the appendix is given a list of vessels arriving in South Australia with the names of their surgeons and, where known, the number of passengers.

## Correspondence.

### A CASE OF TETANY FOLLOWING INJECTION OF PITUITRIN.

SIR: I wish to report the following case in which tetany followed an injection of pituitrin.

Mrs. D.T., aged twenty-seven years, was admitted to the Hornsby and District Hospital on September 12, 1943, on account of sterility. She had been married for four years and had become pregnant eighteen months prior to her admission to hospital, miscarrying at the end of the twelfth week. No reason could be discovered for the miscarriage, except severe retroversion of the uterus. The only previous illnesses were three or four exanthemata in childhood. Reposition of the uterus and the wearing of a pessary had been tried; but pregnancy had not ensued.

Examination prior to her admission to hospital disclosed that the patient was a healthy young woman. A tubal patency test revealed no abnormality. Slight "erosion" of the *cervix uteri* and pronounced retroversion of the uterus were present; pressure on the fundus in the pouch of Douglas caused deep-seated pain in the pelvic region.

On September 14 operation was performed under ether anaesthesia administered by the "open" method by Dr. C. Retchford. The uterus was curetted and diathermy was applied to the cervix by Young's method. The abdomen was opened and the round ligaments were shortened; the veriform appendix was removed.

The patient vomited a little twice on the day of the operation and then settled down, appearing very comfortable. Two hypodermic injections of morphine, each of one-sixth of a grain, were given, one about three hours after the operation and the other twelve hours later.

On one of my visits, eighty hours after the completion of the operation, the patient said that she felt very well except for some lower abdominal discomfort. The bladder was emptying normally, but as the bowels had not been opened, I instructed the nursing staff to give her an injection of one cubic centimetre of pituitrin and an enema. I then left the hospital.

The treatment was carried out almost immediately after I left. I was subsequently informed that, about fifteen minutes after the administration of the pituitrin, the patient complained of a tingling sensation in her hands, feet and nose. About half a minute after this one of the resident medical officers, Dr. A. Adams, noticed a typical carpo-pedal spasm. At the same time the patient complained of a feeling of constriction in the muscles of the throat, and her breathing was difficult.

Attempts to reach me by telephone having failed, Dr. R. K. Rae kindly advised that one-sixth of a grain of morphine be administered. This was done, and some relief was experienced, although the spasm persisted. I was eventually located and saw the patient about forty minutes after the onset of the attack. She complained of tightness in the throat, although the breathing appeared to be

tolerably easy, and of "cramps" in the hands and feet. Her temperature was 98.8° F., her pulse rate was 100 per minute and respirations numbered 20 per minute. The systolic blood pressure was 160 millimetres of mercury and the diastolic pressure 88; the figures had been, respectively, 124 and 80 prior to operation. A typical carpo-pedal spasm was present.

I commenced the intravenous injection of calcium gluconate, during which the symptoms and spasm gradually abated, but as the symptoms were becoming ameliorated after the injection of morphine, it is difficult to decide whether or not the calcium gluconate was responsible for any improvement. The patient was apparently quite well, although fatigued, eighty minutes after the attack. An examination the next day failed to elicit either Troussseau's or Chvostek's sign. Subsequent recovery was uneventful.

An explanation of the attack is difficult to give. The post-operative recovery and slight amount of vomiting do not appear to suggest alkalosis. Her previous health gave no support to the hypothesis of parathyroid disturbance, and the only supposition I can make is that the intense vasoconstriction caused by the pituitrin may have temporarily disturbed the circulation of the parathyroid glands, so interfering with calcium metabolism. However, the short period of time between the injection of the pituitrin and the onset of symptoms does not lend very strong support to this explanation, and I should be grateful if anyone could put forward a more feasible theory.

Yours, etc.,

G. M. HAY,  
Honorary Surgeon, Hornsby and  
District Hospital, New South  
Wales.

Hornsby,  
New South Wales,  
November 3, 1943.

#### EXTRACAPSULAR EXTRACTION OF CATARACTS.

SIR: It often takes many stimuli before one's medical impressions and results are recorded in print. About five years ago, I was stimulated to make an analysis of seventy cases of extracapsular cataract extractions, performed by myself, because of the assertion of a fellow oculist that the visual results of his intracapsular extractions were better than mine. At the same time, he analysed a similar number of his intracapsular extraction cases, and he was able to find, and interested to know, that the results he obtained from intracapsular extractions and the results I obtained from extracapsular extraction technique were very similar as regards visual results. My notes were then filed away, and no more was thought of them until I read in *THE MEDICAL JOURNAL OF AUSTRALIA* of October 16, 1943, of a survey of forty cases of intracapsular extractions reported on by Dr. R. A. de Castro Basto, of Sydney.

The comments of Dr. de Castro Basto on his operative results stimulated me to unearth my statistics. The first statement of his that I disagreed with was "the resulting vision from intracapsular extraction is remarkably better than it is after 'classical' or partial extraction, namely, the extracapsular method". A second statement that Dr. de Castro Basto made was, "because of the complete removal of the cataract with its capsule, the vitreous is supposedly more apt to escape". Statistics have proved, however, that the latter objection is not founded on facts, but that it is put forward only on a theoretical possibility.

In Table I, which I now publish for the first time, are given the visual results in these successive seventy cases of mine, in which all the patients were operated on by the

extracapsular method, and it will be seen from this table that 36 did not require capsulotomy, and that 86% of these 36 had 6/6 vision or better. Thirty-four did require capsulotomy, and 88% of these 34 had 6/6 vision or better. In the footnote is given an explanation of the nine cases in which vision was less than 6/6. Of the seventy patients, 87% had 6/6 vision or better.

On returning to Dr. de Castro Basto's figures, in which all the operations were done by the intracapsular method, we find that 22 out of his 40 patients (that is, 55%) had 6/6 vision or better, and of the remaining 18, or nearly half, the vision did not come up to this standard.

With regard to complications, Dr. de Castro Basto gives his complications as seventeen, which equals 42.5%. Table II deals with the complications in cataract extraction experienced by my seventy patients, and they number thirty-one, namely, 44.3%. As every oculist realizes, prolapse of iris and prolapse of vitreous are the two complications in cataract extraction which are very seriously to be avoided. In my seventy cases, there was one case of prolapse iris and four cases of loss of vitreous. As a footnote to Table II I give the reasons for these four cases of prolapsed vitreous.

TABLE II.  
Complications of 70 Extracapsular Extractions.

Complication.	Number of Cases.
Iritis	8
Hyphema <sup>1</sup>	11
Keratitis	2
Cyclitis	1
Prolapse of iris	1
Loss of vitreous <sup>2</sup>	4
Loss of eye	1
Anterior synechiae	2
Total	31 (44.3%)

<sup>1</sup> Includes both operative and post-operative.

<sup>2</sup> The four cases are as follows: (a) Occurred in a patient suffering from chronic glaucoma who had had a preliminary iridectomy. (b) Post-operative, due to mania. (c) Fluid vitreous lost at operation, but visual result 6/6. (d) Lost at operation, probably due to too small a section.

In turning again to Dr. de Castro Basto's figures of complications, we find that he had ten cases of prolapsed vitreous and two of prolapsed iris, and he makes a third statement which I cannot agree to, namely, that "loss of vitreous is not a serious complication when the accident is properly handled". Subsequently, he admits that in 50% of his prolapsed vitreous cases the patients had less than 6/6 vision. I also found that two of my four patients with vitreous loss had less than 6/6 vision.

Most Australians as a whole are most progressive in thought and always welcome fresh advances in ophthalmological surgical technique. But I personally feel that until a safer operation is found, extracapsular extraction will continue to be my operation of choice in the treatment of cataract patients, especially when I can promise the patient 6/6 vision in nine cases out of ten. It would be of extreme interest if other oculists in Australia would give their opinion and figures also.

Yours, etc.,

J. BRUCE HAMILTON, M.B., Ch.M.,  
D.O.M.S., D.O., F.R.A.C.S.  
Hobart,  
November 15, 1943.

TABLE I.  
Visual Results of Extracapsular Extraction.

Observation.	Visual Results. <sup>1</sup>										Percentage with 6/6 Vision or More.	
	6/3	6/4	6/5	6/6	6/9	6/12	6/18	6/24	6/36	6/60		
Number of extractions: 70	13	18	2	18	10	3	2	1	0	2	1	87.14
Number of extractions with capsulotomy: 36=51.4%	5	13	0	10	3	1	2	0	0	2	0	86.11
Number of extractions without capsulotomy: 34=48.6%	8	5	2	8	7	2	0	1	0	0	1	88.23

<sup>1</sup> Patients with less than 6/6 vision. (a) Suffered from high myopia as well as cataract; (b) suffered from albuminuric retinitis; (c) very degenerate vitreous; (d) lost vitreous at operation; (e) chronic glaucoma and lost vitreous at operation; (f) operated on in bed, patient completely paralysed, visual result probably better; (g) detachment of the choroid, mental patient; (h) loss of eye due to mania; (i) advanced chronic glaucoma.

## EXTRACTION OF CATARACT IN ITS CAPSULE.

Sir: Dr. de Castro Basto's paper of October 16, 1943, has certainly stimulated discussion on the merits of varying types of cataract operations.

Whilst I am not prepared to enter the lists on the side of either protagonist, my sympathy lies with the intra-capsular method. I do not think losses of vitreous up to 40% or even of any can be regarded with complacency. My practice for the past twelve years has been to perform or attempt intracapsular extraction in all cases conforming to certain safety requirements. If this is followed I do not regard total removal as more dangerous than any other method and certainly the patient has a more peaceful convalescence. Cataracts following glaucoma operation and complicating irido-cyclitis are certainly more safely removed in their capsules.

Yours, etc.,

55, Collins Street,  
Melbourne,  
November 18, 1943.

J. A. O'BRIEN.

## Naval, Military and Air Force.

## APPOINTMENTS.

THE undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Number 243, of November 18, 1943.

## ROYAL AUSTRALIAN AIR FORCE.

## Citizen Air Force: Medical Branch.

The probationary appointments of the following Flight Lieutenants are confirmed: J. B. Curtis (257233), J. H. Kelly (257480).

## Reserve: Medical Branch.

Squadron Leader E. J. Davies (271504) is transferred from the Active List with effect from 15th October, 1943.—(Ex. Min. No. 307—Approved 16th November, 1943.)

## CASUALTIES.

ACCORDING to the casualty list received on November 26, 1943, Major R. H. Stevens, A.A.M.C., Kew, Victoria, who was previously reported missing, is now reported missing, believed to be a prisoner of war.

## Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Franklin, Norman Norbert (registered in accordance with the provisions of section 17A of the *Medical Practitioners Act*, 1938-39), 653, Old South Head Road, Rose Bay North.  
Miller, George Joseph, M.B., B.S., 1941 (Univ. Sydney), 20, Napoleon Street, Mascot.  
Wiles, Ronald Booth, M.B., B.S., 1942 (Univ. Sydney), 4, Blaxland Road, Bellevue Hill.  
Gratten-Smith, Maureen, M.B., B.S., 1943 (Univ. Sydney), Sydney Hospital, Sydney.  
Barnes, Muriel Agnes, M.B., Ch.M., 1925 (Univ. Sydney), 308, Miller Street, North Sydney.  
Harris, Hubert Roy, M.B., B.S., 1943 (Univ. Sydney), District Hospital, Grafton.  
Malouf, Phozzie Anthony, M.B., B.S., 1943 (Univ. Sydney), 465, Church Street, Parramatta.  
McKell, James, M.B., B.S., 1942 (Univ. Sydney), Royal North Shore Hospital, St. Leonards.

## Obituary.

## JOHN HARRIS.

WE regret to announce the death of Dr. John Harris, which occurred on November 25, 1943, at Kiama, New South Wales.

## CECIL BLUETT.

WE regret to announce the death of Dr. Cecil Bluett, which occurred on November 24, 1943, at Lismore, New South Wales.

## Books Received.

"A Practice of Orthopaedic Surgery", by T. P. McMurray, M.B., M.Ch., F.R.C.S. (Edinburgh); Second Edition; 1943. London: Edward Arnold and Company. 8½" x 5½". pp. 443, with many illustrations. Price: 30s.

## Diary for the Month.

Dec. 7.—New South Wales Branch, B.M.A.: Executive and Finance Committee.  
Dec. 7.—New South Wales Branch, B.M.A.: Organization and Science Committee.  
Dec. 8.—Victorian Branch, B.M.A.: Council.  
Dec. 9.—New South Wales Branch, B.M.A.: Branch.  
Dec. 10.—Queensland Branch, B.M.A.: Annual Meeting.  
Dec. 14.—New South Wales Branch, B.M.A.: Ethics Committee.  
Dec. 14.—Tasmanian Branch, B.M.A.: Branch.  
Dec. 17.—Queensland Branch, B.M.A.: Council.  
Dec. 21.—New South Wales Branch, B.M.A.: Medical Politics Committee.

## Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Honorary Secretary, 135, Macquarie Street, Sydney): Australian Natives' Association; Ashfield and District United Friendly Societies' Dispensary; Balmain United Friendly Societies' Dispensary; Leichhardt and Petersham United Friendly Societies' Dispensary; Manchester United Medical and Dispensing Institute, Oxford Street, Sydney; North Sydney Friendly Societies' Dispensary Limited; People's Prudential Assurance Company Limited; Phoenix Mutual Provident Society.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federated Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178, North Terrace, Adelaide): All Lodge appointments in South Australia; all Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205, Saint George's Terrace, Perth): Wiluna Hospital; all Contract Practice appointments in Western Australia.

## Editorial Notices.

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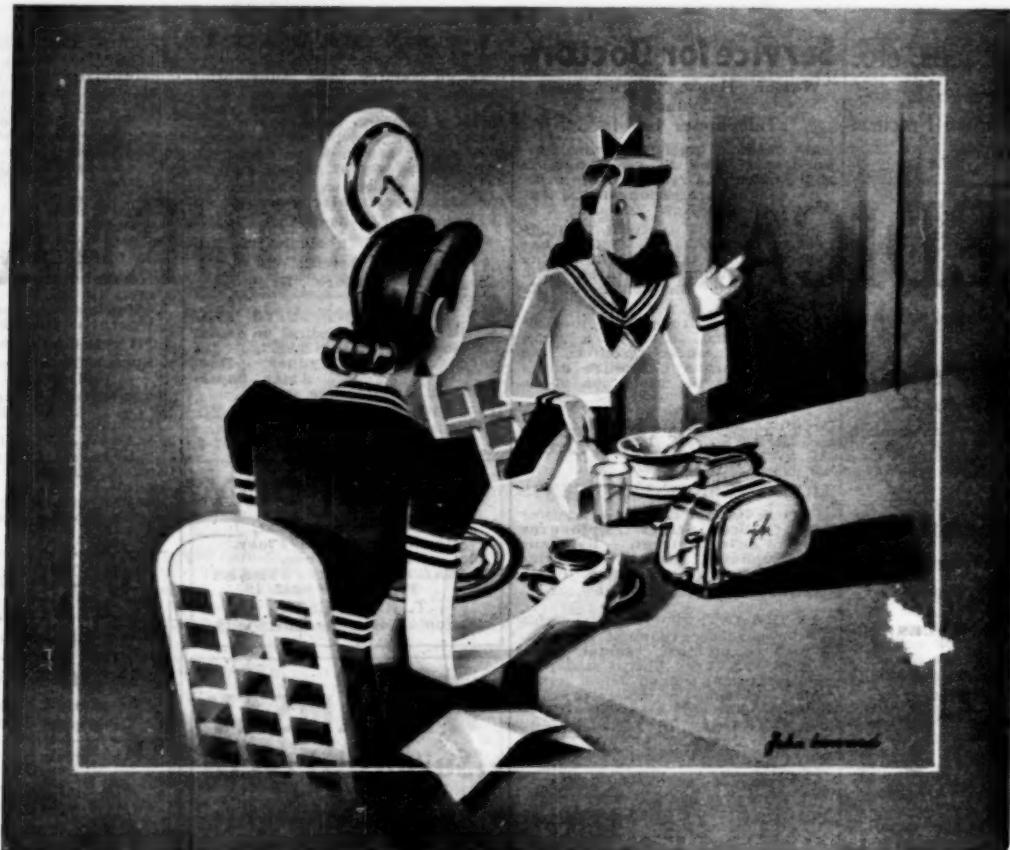
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